AMATEUR RADIO

JUNE 1949

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

FOR THE EXPERIMENTER & RADIO ENTHUSIAST

6D.

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— IN THIS ISSUE —

AMATEUR RADIO

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EDITORIAL

★

I have often wondered just how many members read the Editorial each month. Every member should make it a point of reading and studying the Editorial for in practically all cases it deals with some point of Institute policy.

However in this case the Editorial does not deal with Institute policy, but one which is closely linked with Institute policy—that of Magazine policy.

I have no doubt that this month the majority of readers have looked through the Magazine first, and perhaps read it, before turning to the Editorial. They have perhaps been a little disappointed at the contents—a new reader may perhaps wonder just what it is all about.

I offer no apologies for the material within these covers—but perhaps I may make an explanation. This issue of the Magazine contains the proceedings of the recent Federal Convention, the text of which should be of vital interest to all members, and prospective members of the Institute. One issue each year will be devoted to the proceedings of the Federal Convention.

I would have liked to increase the number of pages in this issue to cover the Convention, but with our present income from sales and advertising, this was impossible. The number of pages is governed by the advertising, and in this respect you can help improve the Magazine. You can do this by inducing prospective advertisers to take space in the Magazine—in fact acting as a self contained publicity agent.

It should be obvious to members that if more advertising is obtained, more pages can be added to the Magazine, and consequently more reading matter, either in the form of technical material or notes.

I have every hope that from the July issue members in all Divisions will receive their Magazine within a few days of the first of each month. In order to do this, the date for which all copy is due in Melbourne, and a date which, in the future, will be strictly adhered to, has been moved forward to the 8th of each month.

This early date, I feel, will not suit every Division, but in order to achieve the object of first of the month delivery in each State, any Division which is so affected, will, I feel sure, accept the early date as a progressive step to ensure early delivery of the Magazine.

I regret that a great deal of material forwarded by Divisional Sub-Editors, Zone Correspondents, and others for this issue has had to be severely curtailed or deleted entirely.

THE EDITOR.

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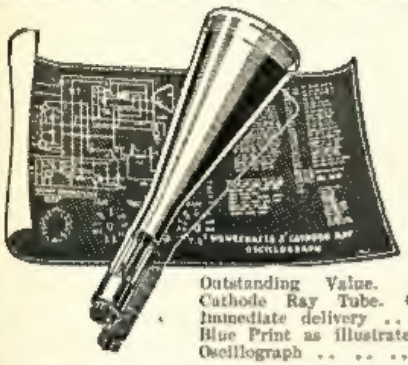
BETTER BARGAINS for the AMATEUR



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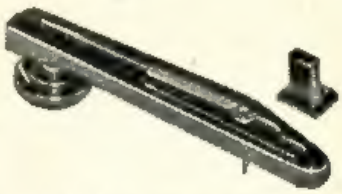

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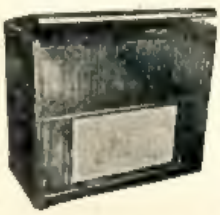

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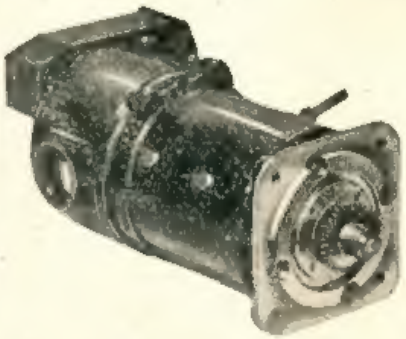

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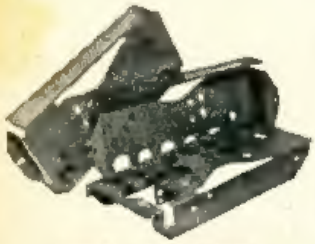

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The Propellor Feathering Motor as a Beam Rotator

BY D. R. AYRE,* VK3KP

A number of Amateurs have obtained from Disposal sources 24-volt (d.c.) propeller feathering motors of the kind used in 3-bladed variable pitch aircraft propellers. These motors, with their associated reduction gear-box, weigh only 40 to 50 pounds.

They are readily converted to a.c. operation and develop a very large torque that is more than sufficient to turn the largest rotary beam assemblies.

Many requests for conversion data have been received. The present article is the outcome.

MODIFICATIONS Fig. 1 shows a sketch of the motor (D) in its outer cover of spun aluminium sheet (R) together with the reduction gear-box (F), the mounting plate (H) and the bevel gear (J). The latter is, of course, the final drive of the unit, and meshes, in a complete propeller, with gears attached to the blades.

Hearsay evidence suggests that the gear-box (F) is almost full of castor oil, and that any attempt to separate the two halves of the casing is likely to make a notable mess unless precautions are taken to catch the oil. However, it should not be necessary to open up the gear-box. Its oil may be inserted or removed in a more conventional manner by unscrewing plug (O). It is suggested that a rough check should be made to ensure that the gear-box is 40 to 50% full of oil. "Shell" household oil would be a suitable lubricant in place of castor oil if a dry gear-box is met with. There are several grease nipples on the gear-box (K is one). Medium car grease will do for these. So much for lubrication.

The following modifications are required:—

1. Removal of Stop Plug:

Unscrew stop plate (L), saw off the plug attached to its back, and replace the plate. (Reason: The plug is part of a cam-operated mechanism designed to prevent full 360 degree rotation. The rest of this mechanism, comprising mainly pivoted trip arms, can be removed, if desired, by taking off the bevel gear (J) and the mounting plate (H), extracting the trip pivots and, finally, removing the trip arms. This last operation involves a pretty piece of juggling, but is quite possible. Replace the mounting plate and bevel gear.) The warning plate (N) relates to this stop.

2. Removal of Brake, etc.:

Take off the motor cover (R) by removing three screws (one is shown at E). The magnetically operated brake assembly (B) is revealed. Unscrew the threaded ring at the end of the motor casing extension. Undo the cotter-pinned nut which holds a small toothed sprocket in the composition clutch plate and remove the sprocket and its key from the motor shaft. Remove springs (A). Finally remove entire brake assembly.

(Reason: A very considerable amount of current is necessary to operate this clutch type brake which was designed to prevent the immense torques of spinning propeller blades from rotating the motor and thus permitting unwanted variation of pitch. There is, however, little likelihood of wind pressure on beams rotating the motor through the reduction gear owing to the very high ratio [9,576 to 1] of the train. Such pressures are trifling compared with the torques developed in aircraft.)

3. Removal of Coil:

A double-layered coil of enamelled copper strip is now disclosed in coil surround (Q), the coil being connected to two terminals (C). Disconnect the coil leads from the terminals and connect a shorting link across the latter. The coil may be left in place once it is open-circuited, but the author prefers to rip it out on principle. Finally replace the threaded ring.

4. Suppression of Motor Interference:

Motor noise (electrical) can prevent accurate beam positioning on received signals. In some cases, this noise level is so high as to interfere with broadcast receivers in the neighborhood. Many Amateurs have found that shielding the leads to the motor and grounding its frame have not materially reduced the noise level.

W3GHD is responsible, says "QST," for devising the following cure. (Although it is necessary to remove the motor (D) from the gear-box (F), it is not necessary to remove the entire mechanism from an existing installation.)

With the cover (R) removed, loosen the threaded ring (P) which clamps the motor to the gear-box. Support the motor with one hand before disengaging the last few threads. A straight axial pull will disengage the motor from the gear-box.

Looking at the drive end of the motor, six brass-surfaced brush holders will be noticed (numbered 1 to 6 in Fig. 2) symmetrically arranged about the motor shaft and its gear. Clean the tops of these brush-holders carefully in preparation for soldering. Midway between

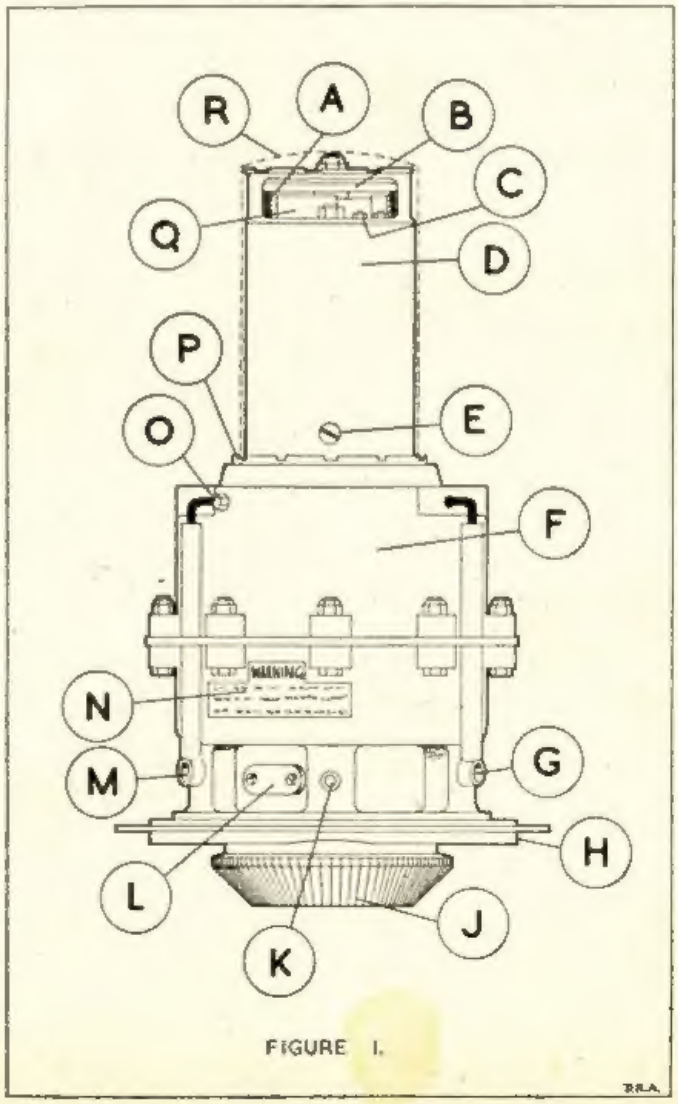


FIGURE 1.

* 65 Kenmare Street, North Box Hill, E.12, Victoria.

brushes 2 and 3, 4 and 5, 6 and 1, counting around the circle from any point, drill three holes through the side of the motor and tap them for ¼" Whitworth or similar screws. Insert the screws with the heads inside, and with a shake-proof washer and a double solder lug under each.

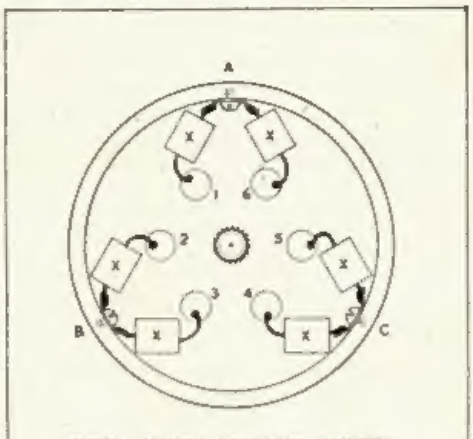
Procure six midget mica condensers of from 0.002 to 0.01 uF. capacitance (the larger the value, the better) and solder them in as shown in Fig. 2, where they are marked X, to by-pass each brush-holder to ground. File the screws flush with the motor case, and reassemble the motor to the gear box.

POWER SUPPLY AND SWITCHING Four wires come out of the gear-box and pass down tubes to terminals, two of which are shown at (G) and (M) in Fig. 1. The other two, not shown, are close together at the back. The wires end in lugs at these points. The lugs are screwed to connectors which pass through the case and, via spring-loaded switches operated by the cam mentioned earlier, connect to four sunken spring contacts in tubes slightly raised from the face of mounting plate (H).

Only three of the four leads are needed, namely, that marked (G) and the two at the back. It is a matter of convenience at what point in the lead or connectors the connections are made to the supply cables. (G) is the common connection, while of the two close together at the back, one and common connection (G) give clockwise rotation, and the other in conjunction with (G) gives anti-clockwise rotation.

Thus, three leads to the motor combined with a single-pole double-throw switch represents the sum total of equipment necessary to control the motor.

Very little power is needed to turn the motor. A transformer delivering 20 volts on load from an 18 gauge s.w.g. winding did not get appreciably warm after ten minutes continuous running, which is probably much longer than most Amateurs would rotate a beam at any given time. At this voltage, the bevel gear speed was slightly under ¾ r.p.m. It is suggested that the motor be run at from 25 to 30 volts. It should then be possible to achieve 1 r.p.m., which is satisfactory for most beams.



NOTE: MOTOR CONTACTS OMITTED

FIGURE 2.

MECHANICAL INSTALLATION The unit is readily mounted in any position by means of plate (H), which is drilled for bolts.

Drive take-off from the bevel gear is best left to the ingenuity of the user; various methods can be devised according to the material on hand.

A small hole, say ¼" diam., should be drilled in the centre of the top of the cover (R) to allow any condensed moisture to drain out when the motor is in use (i.e., with bevel gear upwards).

ACKNOWLEDGMENTS

The author makes few claims for originality in this article. It is more in the nature of an attempt to bring together in one place a number of ideas and facts originating in various quarters. Much credit is due to articles in "QST," particularly that on the suppression of noise generated by these motors ("QST" Nov. '48, p. 65), part of which is reproduced verbatim. VK3XS (R. R. Prowse), VK3VO (R. J. Clark), and VK3VZ (J. C. Duncan) were responsible for considerable helpful information, and to them the author extends his thanks.

Hints on Identifying and Tuning a S.S.S.C. Signal

BY LEN EDWARDS,* VK7LE

Now that Single Sideband Suppressed Carrier (s.s.s.c. for short) transmissions have been authorised by the P.M.G's. Dept., a few remarks on how to recognise and tune in such a signal should not be out of place.

If you ever hear what sounds like a very bad case of splatter without a carrier which kicks up the S meter and is tunable over a narrow section of the band, the chances are that it's not the fellow a few blocks away modulating 150%, but a single sideband signal. If this proves to be the case, then the next thing to do is to centre the signal in the receiver pass-band and leave the main tuning control set in that position. If you possess a frequency meter, v.f.o. or some other source of local carrier, turn it on and tune across the s.s.s.c. signal VERY carefully until the s.s.s.c. signal sounds like a normal phone transmission.

When this point is reached, the signal should jump out of the noise, etc., in a very surprising manner. If the local carrier source is reasonably stable it should not be necessary for any further adjustment except perhaps to experiment with the amount of coupling from the local oscillator into the receiver. The optimum coupling position, however, seems to be quite broad—too much carrier giving the effect of a signal with low modulation, and too little coupling giving an overmodulation effect, with distortion and the inability to entirely clear up the inverted speech effect.

* Strickland Avenue, Hobart, Tasmania.

The chances are that there will not be enough carrier injected into the receiver, because although the signal itself may sound weak, it has quite a high peak power and a relatively large amount of local carrier is needed to prevent any overmodulation effect. For instance, if the average radiated power of the sideband signal is 50 watts, then the equivalent carrier power for this amount of sideband is approximately 8 times greater or about 400 watts!

Another method of supplying a local carrier for the single sideband signal is to use the receiver b.f.o. With this method the technique is somewhat different and because of the varying nature of the signal, and there being no carrier to operate the a.v.c. and hold the gain down, it may be necessary to switch off the a.v.c. and turn the manual r.f. or i.f. gain down so that the receiver will not be overloaded anywhere. When this is done, turn up the audio gain and switch on the b.f.o.

Now VERY CAREFULLY tune the b.f.o. until the signal becomes intelligible. On either side of the correct position the speech will sound inverted and high pitched or low pitched, but when right on the nose it should sound just like any other signal. Don't make the mistake of trying to zero beat anything because there's nothing to zero beat if the carrier has been completely suppressed at the transmitter—just tune the local oscillator for clear speech. A little care is needed to get the exact frequency because the local oscillator should be adjusted to within ± 50 cycles of the original suppressed carrier frequency.

Maybe all this sounds quite complicated and tricky, but in practice the technique is soon mastered and things fall into place quite easily. Anyway the little bit of extra care in tuning is well rewarded. Tests so far have shown a large reduction in QRM and QRN when using s.s.s.c. and these days a contact which is free of both these troubles is quite a rare thing.

Summarising briefly, the tuning process for receiving a single sideband signal is as follows:—

If using a separate oscillator, v.f.o., Frequency Meter, etc.:—

(1) Tune in the s.s.s.c. signal in the usual way.
(2) Switch on the v.f.o. or Frequency Meter and carefully tune it across the signal until the speech becomes intelligible. Do not try to zero beat anything—tune only for clear speech.
(3) Turn the audio down—you'll wake the baby!

If using the Receiver B.F.O.:—

(1) Tune in the s.s.s.c. signal.
(2) Turn off the a.v.c., run back the i.f. or r.f. gain and turn up the audio control.
(3) Switch on the b.f.o. and carefully tune it across the signal until clear speech is obtained.

The first method using a v.f.o. or frequency meter is probably the most satisfactory, as it has a blanket effect on the receiver, thus giving a better QRM and noise reduction.

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

JUNE, 1949

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine, together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following world zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3	N.-West America	San Francisco
3a	N.-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

The forecasts have actually been prepared for point-to-point circuits between Canberra and the overseas terminals mentioned in the above table. It is, however, to be expected that the charts will provide an approximate indication of ionospheric conditions for all Amateur contacts from South-Eastern Australia to the various world zones.

The Perth charts are similar to those based on Canberra, except that the Far East terminal is Shanghai in chart P-Z6. No forecasts are given from Perth to Zones Z2 and Z4 for the current month. Chart P-Z2 would be essentially similar to P-Z1, while chart P-Z4 might be unreliable due to auroral activity in high northern latitudes.

USE OF CHARTS

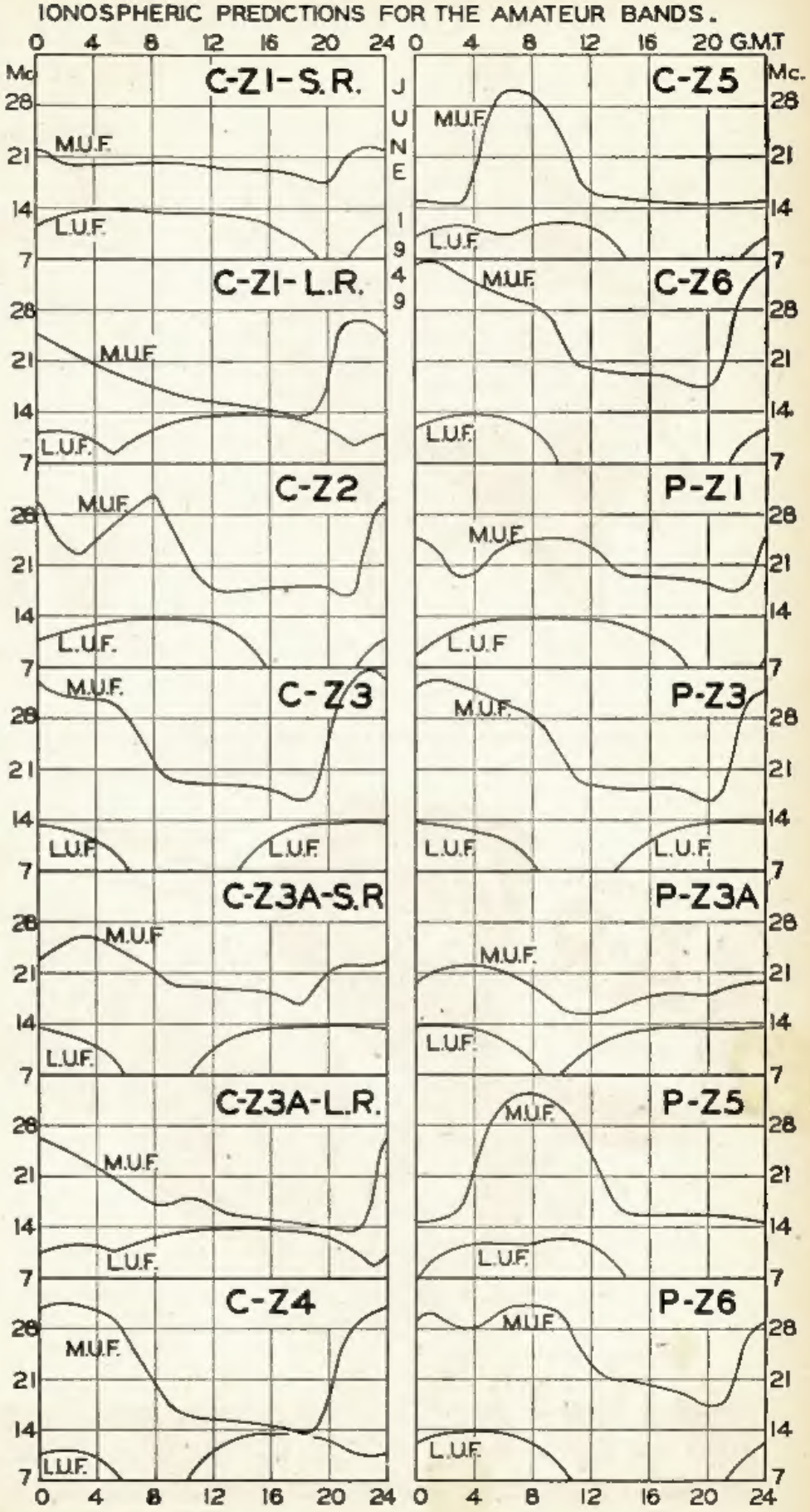
All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (M.U.F.) of the F region of the ionosphere but above the lowest useful frequency (L.U.F.) for the desired contact. In two cases, Zones 1 and 3a, it is necessary to consult both the short-route (S.R.) chart and the following long-route (L.R.) chart.

QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-Johannesburg circuit would be useful:—

1. Were conditions good on 7 Mc. from 14 hours to 22 hours G.M.T.?
2. What were conditions like on 14 Mc. for the period 12-24-04 hours G.M.T.?
3. Was communication possible on 28 Mc. for a short period around 0600 hours G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.



A Crystal Controlled Converter

BY DR. LEO H. McMAHON,* VK2AC

The first thing an Amateur acquires is a receiver. Most of these receivers are self-made and from humble beginnings grow in size and complexity. Branches in turn produce b.f.o., noise limiter, S meter, separate a.v.c. systems, etc. The receiver and its accessories function with varying degrees of success and produce satisfaction, disappointment, and disgust accordingly. Periodicals are scanned and great is the chagrin when one sees that overseas commercially-built receivers can be had for so many unattainable dollars, and are also beyond the purse of the greater percentage of Amateurs.

In the production of a home-made receiver, many factors come into play. The most important is the mechanical ability of the maker. This varies from those who really are good, to those whose ability is not far from a negative quantity. Consequently many receivers can be handled only by one person who knows just where, and how, much pressure to exert to bring a station back to where it was three minutes previously.

Two very important failings in a receiver are connected with the mechanics; these are instability and a.c. modulation of the high frequency oscillator. A great many receivers suffer from this last trouble and it is difficult to eradicate. The trend in modern sets is for double conversion, or even triple conversion with the addition of a Q5er.

The Collins 75A receiver has the cure all for the two faults mentioned, that is crystal control of the higher frequency oscillator, and tuning of the second or low frequency oscillator. This gives the man with limited mechanical ability the opportunity to build a satisfactory receiver, as almost everybody can build a stable low frequency oscillator.

To make the application of the above mentioned principle easier, articles have recently appeared in "QST" for November 1947, October and November 1948, showing how to make crystals oscillate on their third harmonic. This circuit is the same as shown in the schematic and was described in October 1948 "QST."

When one reads an article on how to build some piece of equipment, you are confronted with not only the mechanical difficulties, but the trouble of not being able to duplicate the parts prescribed; as if you haven't enough trouble making it go anyway. So this article has been written to show the results obtained on locally made and easily attainable parts.

Four of these oscillators have been made up using odds and ends. The one used in the writer's converter at present is for tuning both the 7 and 14 Mc. bands, as these are the two used by most Amateurs. Previously a triode oscillator was used with a plate tickler, this turned out to be very handy, as it needed no change in the coil whatsoever, but just the re-arrangement of a few leads.

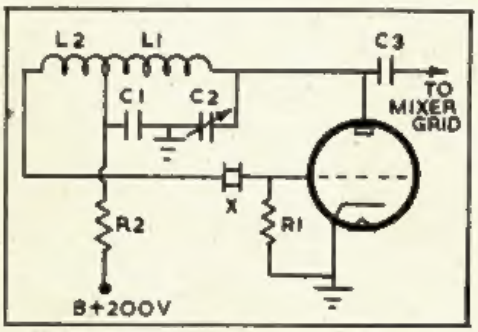
* 532 Harbourne Rd., Kingsford, Sydney.

This application of a crystal operating at its harmonic frequencies deserves careful consideration.

With broad band r.f. stages in general use, a Converter using the crystal operating on one of its harmonics, as outlined in this article, looks a most interesting possibility, and by using the standard receiver as the second i.f., the image rejection and stability should be exceptional.

The crystal used is 3540 Kc. This oscillates at 10.6 Mc. approximately. The crystal does not oscillate at exactly three times its fundamental, however, and it has not been measured exactly as yet. To tune the 14 Mc. band, the first i.f. covers the range 3.4 to 3.7 Mc. with the oscillator on the low frequency side of the signal. This, as is easily seen, also does the 7 Mc. band in which case the oscillator is on the high frequency side.

The Converter uses a 954 r.f., 6AC7 mixer, and a 9002 oscillator. The reason these tubes were used is that the converter previously covered all bands from 40 to 6 metres, with plug-in coils. Don't try to make it work on 80 metres with a 3 Mc. first i.f., for it will "take off." The front end can be to your own liking, that is the r.f. and mixer. The oscillator tube used here is a 9002, only



Value of components used in the writer's converter:—

R1—20,000 ohms.
R2—5,000-50,000 ohms.
C1—0.01 uF. Simplex (S.M.)
C2—3-30 pF. trimmer.
C3—Very small capacity.
L1—12 turns of 18 gauge enamel, close wound.
L2—6 turns of 22 gauge enamel, spaced ¼" from L1.

Coil wound on 807 base. Crystal (fundamental 3540 Kc.) output 10.6 Mc. approx. Valve: 6J5, 9002, half of 6SN7GT or half 6J6. These valves have been tried and are known to work.

Value of components from "QST" of October 1948:—

R1—3,300 ohms.
R2—4,700 ohms.
C1—470 pF.
C2—15 pF. variable.
L1, L2—varied with crystal frequency.
Valve—Half of 6J6.

because one was acquired in my travels. A very satisfactory tube is a 6J5, either glass or metal. This tube works quite satisfactorily up to 25 Mc. So you can see that there is no need to worry over tube types.

The condensers used are as follows: C1, in my case, is a 0.01 uF. mica (Simplex S.M.). They tell me S.M. does not stand for silver mica. C2 is an ordinary trimmer that covers from about 3-30 pF. VK2ABB used a 6J5 with a Philips' concentric trimmer; mine is a small compression type which is readily available. The brand is not known, but it is about the same colour as an 807 base. VK2ABC used an old disposals variable. A ceramic mica was used in the other oscillator, so you can see there has been some variation. Watch it for breakdown, however, it has 200 volts across it.

For the oscillator in the receiver we have used 20,000 ohms as grid resistor and a load resistor of 5,000 to 50,000 ohms. With a grid resistor of 3,000 ohms the crystal current lights a 6 v. 150 Ma. bulb to about third brilliance and did that crystal get hot!!

In the case of the crystal oscillating on 10.6 Mc. the coil was wound on an 807 base. L1, or the part across the two condensers, consists of 12 turns of 18 gauge enamel wire, close wound. L2 or the regenerative coil, consists of six turns of 22 gauge enamel wire. This is spaced ¼" from L1. As was stated before, this being just the unaltered coil out of my old plate tickler converter.

The secret of the coil is to have L1, C1 and C2 tune to the frequency you want the crystal to oscillate on, and L2 just large enough to make the crystal oscillate, but not large enough to let the whole thing take off as an ultra-audron, using the capacity of the holder, pins and leads. Quite a few crystals have been used, all disposals types. Only one wouldn't work. Maybe if we had cleaned it, it would have gone for us.

Tubes tried were 9002, 6J5, 6SN7GT, 6J6, so take your pick. The 6J5 is a good one, and the resistors are quite standard low wattage types.

In my case grid injection is used, whereas VK2ABB used cathode injection. We have no means of determining injection voltage, but both found the conversion was better when some capacity coupling was used. In my case two 3540 Kc. crystals were on hand. One oscillated very well and gave a grid current of 0.2 Ma., which climbed to 0.5 Ma. after half an hour and stayed steady at that value. The holder did not get hot. This crystal did not give as good a conversion gain as the other one, which gave only a constant one twenty-fifth milliamp. of grid current.

With this oscillator mechanical skill is not of such consequence, and you know you are not hiding the fact that your oscillator is pulling by ganging your condenser.

In my case I have no spurious signals on 20 or 40 metres. VK2ABB has one

(Continued on Page 8)

QUESTIONS AND ANSWERS

In a letter recently received by the Editor giving comments on, and suggestions for, the magazine (how long since YOU wrote such a letter?), a few thoughts were given on this column. It was suggested that the question should always be reprinted with the answer, to save having to dig back through previous issues to find out what it's all about. That's a good point, so be it in the future.

It was also suggested that some may be shy to have their name appear, advertising the fact that there is at least one thing they don't know. The other side of this point has been found out by some who have had questions published, that they get a lot of information personally at Institute meetings, over the air, etc., once it is known that they have a problem. Since there are two sides to this, you can take your choice when you send in a question, to have it published anonymously or over your name.

Another point the same writer made was that the column should be expanded. Now although that's a very nice thought, thank you, the size of this column is not in our control. If no one has a question to ask then that's that, no column. Likewise if no one has any answers to give, for it is impossible for us to run an enquiry service, answering the questions ourselves. Of course we do if we can, but in the main the answers have to come from YOU. As you may have noticed, business has been pretty slack these last couple of months but, with winter coming round, people's troubles should be on the increase. So send them in to Q. & A., "Amateur Radio," W.I.A., 191 Queen St., Melbourne, C.1, Victoria.

Q.10.—From VK3KP: In his article "Series Phased Aerial Arrays" ("A.R." May 1948) the late H. K. Love suggested using twin ribbon feeder for radiators and quarter wave phasing lines of such aerials. How would the velocity factors for this type of feeder (e.g. 0.77 for the 300 ohm type) affect the physical length of:—

(a) The Radiators.
(b) The Phasing Lines?

A.10.—At a recent Victorian Division meeting, 3KP's question was discussed as to what effect using twin ribbon feeder would have on the physical dimensions of a Series Phased Array. 3BM presented the only practical experience, stating that he had made up such an array using 300 ohm feeder for radiators and phasing lines. The dimensions had ALL been made 0.77 of the corresponding free space dimension and it was found to draw best at the frequency it had been cut for.

This was contested by some of the theoretical boys whose points were roughly thus: When the twin lead is acting as a feeder, either resonant or not, or as a phasing line (which is the same difference), the currents in the two wires are 180° out of phase and the field produced is mainly in the space between the wires, just where the plastic is. So the plastic has a large effect causing a wavelength along the feeder to be only 77% of the free space wavelength.

But when a length of twin lead is acting as a radiator, the currents in both wires are in phase and the field is being radiated into space. And since the plastic insulation forms only a small part of all space, the aerial should be cut a full half-wave just as an ordinary half-wave radiator is cut a full half-wave whether bare or insulated wire is used.

One point everyone agrees on is that the phasing lines between radiators should be reduced by the velocity factor. This means that the elements are closer than quarter-wave spacing which may change such things as gain and front-to-back ratio. But as for the element length, you can take your choice.

Q.11.—Can anyone give VK3RN information on disposals gear labelled R-9-A/APN-4; such as frequencies of the i.f. strip and what the whole thing does?

A.11.—From VK3UO: Basically it is an airborne device for measuring time differences between reception of pulses from ground Loran stations. It consists of two basic units, one the receiver power supply unit identified as R9/APN4, and the indicator, counter unit identified as ID6/APN4.

The power supply requires 80 or 115 volts 400 c/s., and 260 volts (regulated by three 6A3's and a 6J7-VR150) as well as 2,600 volts for the c.r.o., becomes available. This unit is portion of the receiver chassis. The receiver itself is usually slug tuned to 1950 Kc. and is liberally supplied with 1050 Kc. wave traps in the input circuits. In actual fact the receiver will tune 1.6 to 3.3 Mc. and also 7.5 to 11.7 Mc., depending on the channel selector setting. The receiver is a standard superhet using one r.f., three i.f., and a second detector. I.F. frequency is 1050 Kc. The gain of the last i.f. tube is varied by another tube in the indicator unit operated through P1 connector, yellow.

The ID6/APN4 indicator is a simple c.r.o., but with counter and multivibrator circuits operated from a 100 Kc. crystal added. The transformers labelled T302 1-4 are not i.f. transformers but are merely iron cored transformers which transfer the counters' charging pulses to the triode which tallies them before applying them to the c.r.o. time base.

The most useful part of the whole box and dice from the Ham point of view seems to be the power supply and receiver chassis, utilising all the remainder except the 6H6, V302-8, and the c.r.o. tube for spare parts. The c.r.o. mounting and 6H6 leveller could then, with mods. on the detector circuits be built into a standard c.r.o.

Crystal Controlled Converter

(Continued from Page 7)

on 29 Mc., using a 17 Mc. crystal. The matter of spurious responses was dealt with in "A.R." for March, and was that the truth! However the improvement is well worth the little trouble to get this oscillator going. The output coil used in the plate of the mixer is a standard aerial coil from a b.c. set. It is iron cored and with no condenser, other than stray capacity, and can be peaked at about 3.5 Mc. It is broad enough to suit both 7 and 14 Mc., and connects to the aerial on the receiver, used as the second i.f.

This article is detailed to help others who may wish to try the idea, and to show the simplicity of the subject. It is a step in the right direction and the writer strongly advises everyone to give the principle thought.

Acknowledgments are due to VK2ABB who built the first converter for 10 metres, VK2ABC who built a two tube transmitter for six metres, and to VK2VW who provided some parts and also built a 6 metre transmitter.

References: "QST" Nov. 1947, Oct. and Nov. 1948, also Dec. 1948 which includes a converter on these lines. "Short Wave Magazine" Feb. 1949 also has a crystal controlled converter described.

A SIMPLE FREQUENCY DIVIDER

BY J. DUNCAN,* VK3VZ

One of the most useful pieces of equipment in the Writer's shack is this Frequency Divider. It was originally built in very "haywire" fashion for calibrating a receiver, but so much use was found for it, that it was decided to re-build it in permanent form. Some of its uses are: to check band edges, calibrate alignment oscillators, receivers, v.f.o's. and frequency meters, and for any other purpose where a series of 1,000, 100 and 10 Kc. points are required throughout the spectrum.

CIRCUIT Reference to the schematic diagram will show the main features of the unit which, basically, consists of a 1,000 Kc. oscillator, either crystal or "Clapp," followed by two multivibrators of 100 Kc. and 10 Kc. Output is taken from a Class A isolator stage which prevents output loading from effecting the frequency of the oscillator.

Referring first to the oscillator circuit, it is strongly advised that a 1,000 Kc. crystal be used, if obtainable, but failing that, the "Clapp" circuit shown will do quite an excellent job, and after sufficient warm up will remain in zero beat with WWV on its 15th harmonic on 15 Mc. for long periods of time. Obviously this unit can be no better than the 1,000 Kc. oscillator, and time and care taken in its adjustment will be well repaid.

The crystal oscillator circuit is quite standard for circuits of this type Slight variation of the crystal frequency is obtained by the condenser across the crystal, C6,

The "Clapp" oscillator circuit shown in the diagram varies from the usual circuit in several respects. It will be noted that there is no grid condenser, the fixed capacities, and tuning condenser serving in this regard. Greater stability was obtained by eliminating this condenser (shown dotted), as it enables the 0.001 uF. condenser between cathode and grid to swamp the inter-electrode capacity more effectively. In the original circuit this 0.001 uF. condenser and the grid condenser were in series, and therefore the maximum capacity across the cathode-grid tube elements could be no greater than the smallest of these two capacities, which is usually 100 pF.

The inductance L1 is an "Aegis M19" progressively wound aerial coil with the primary winding removed. This coil has about the best "Q" for its size, but would not be as effective as a single layer coil of much larger diameter wound on a ceramic former. In the writer's case insufficient space was available to use a large coil, so the M19 was chosen as having the best "Q" for its physical size.

The condensers necessary to tune this inductance to 1,000 Kc. are shown on the diagram and in the parts' list. The three-plate midget, C1, has a good quality planetary reduction drive fitted, and is used to obtain exact zero beat, the 3-30 pF. air trimmer being used to bring the zero beat point to the centre of the scale on this small condenser, and once set does not need re-adjustment.

C3 is a zero co-efficient condenser supplying the bulk of the fixed capacity required, whilst C5 and C4 constitute the required negative co-efficient capacity for temperature correction. The negative co-efficient Ceramicon used was the smallest size the writer had on hand, and as its value caused over-compensation, a small variable trimmer was placed in series to reduce its effect on the circuit, and enabled exact compensation to be obtained. It is important that this condenser have a low minimum capacity, as the condenser will be almost out of mesh for correct compensation.

The output circuit of the oscillator also varies from the usually accepted versions of the "Clapp." When first tried, a triode oscillator was used and output was taken from the junction of the cathode and grid condensers, and fed to the grid circuit of the isolator. It was found that the frequency of the oscillator would vary when the output attenuator and loading were changed. To try and avoid the extra complications of an additional isolator stage, experiments were carried out, using the screen as the oscillator plate and taking output from the plate circuit. Although this method has not been recommended, excellent results were obtained and careful checks showed no detectable difference in the stability of the oscillator. In addition, changes in the isolator output circuit now had no effect whatsoever on the oscillator frequency.

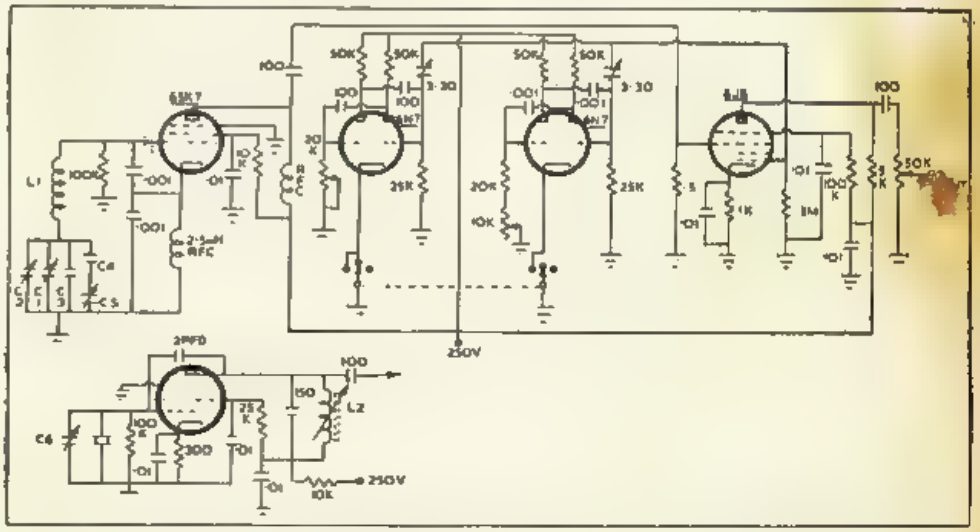
The frequency of the oscillator does show some change with change of plate voltage, and it is advisable to feed the oscillator from a regulated supply.

The 100 and 10 Kc. multi-vibrators are quite standard, input and output being through the 3-30 pF. trimmers. The locking frequencies of these oscillators being adjusted by the variable resistors in their grid circuits. A two pole three position switch is located on the front panel, and is arranged so that in position 1, only the 1,000 Kc. oscillator is working, position 2, 1,000 Kc. oscillator and 100 Kc. multi-vibrator; and in position 3, 1,000 Kc. oscillator, 100, and 10 Kc. multi-vibrators are all operating.

When tuning a receiver with the unit working, it will be found that the 1,000 Kc. points will be loudest, then the 100 Kc. points, and finally the 10 Kc. points slightly weaker again, thereby helping to identify them. It is essential to incorporate a h.t. switch as an aid in identifying the signals if the antenna is left on the receiver.

Referring again to the diagram, the isolator stage uses a 6J8G, the grid receiving the output of the 1,000 Kc. oscillator, and the normal oscillator grid the output of the two multi-vibrators. A 6L7 could be used in this position, with the injector grid used to take the multi-vibrators' output. It is important however that either of these tubes be used, as otherwise switching in the multi-vibrators will effect the frequency of the 1,000 Kc. oscillator, which must be avoided at all costs.

CONSTRUCTION The construction and layout of this unit can well be left to the individual, and provided all components in the oscillator circuit are rigidly mounted, no trouble should be experienced. In the



The diagram shows the "Clapp" 1,000 Kc oscillator feeding the 6J8G isolator with the 100 and 10 Kc. multi-vibrators feeding into the oscillator grid The alternative 1,000 Kc. crystal circuit is shown underneath the main diagram.

C1, C6—Three plate midgets, with good bearings.
C2—3-30 Philips air trimmer.
C3—100pF. NPO Ducon Ceramicon.
C4—20 pF. N750 Ducon Ceramicon (negative comp.).
C5—10 pF. air trimmer of low minimum capacity.
L1—M19 Aegis aerial coil (see text).
L2—Iron cored broadcast coil.

* Technical Editor, 23 Parkside Ave., Balwyn, Victoria.

writer's unit the zero set dial is located in the centre of the panel, with the rotary switch for 1,000, 100, and 10 Kc. output underneath. The h.t. switch is located to the right, and the output terminal to the left of this switch. No output attenuator was incorporated, but is suggested as an improvement on the original.

The chassis used was rather small, and it is hoped to re-build the unit on a larger chassis at a later date, and incorporate a power supply, and a wide range audio oscillator, so that the frequencies can be modulated for help in identification. This would make quite a good multi-purpose instrument.

ADJUSTMENT The first step in adjusting the unit is to set the 1,000 Kc. oscillator on frequency. The output switch should be set to the 1,000 Kc. position, so that neither multi-vibrator is operating. A broadcast receiver in which the dial is calibrated in kilocycles, and in which the stations near the 1,000 Kc. point are on calibration, is very handy in setting up the oscillator.

The receiver should be tuned until the output from the oscillator is heard, and then adjustments made to C2 to bring the oscillator frequency to the 1,000 Kc. point on the dial. Final adjustment can be made by beating the 5th, 10th, or 15th harmonic against the WWV transmissions on 5, 10, or 15 Mc. Use the highest frequency WWV transmission which can be heard, as this will give greater accuracy. It is not necessary to temperature compensate at this point.

Turn on the beat oscillator of the receiver and tune in the 5 Mc. or any other 1,000 Kc. harmonic. Switch the output switch on the Frequency Divider to the 100 Kc. position, and count the number of beats between any two adjacent 1,000 Kc. points. If there are more or less than nine, tune to one of the beats, and adjust the variable resistor in the grid circuit of the multi-vibrator. The beat you are listening to will suddenly disappear. Again count the number of intermediate points, and repeat the adjustments until the nine required are obtained.

The next step is to adjust the 10 Kc. multi-vibrator, which requires more care. Set the receiver on one of the 100 Kc. points and switch on the 10 Kc. multi-vibrator. If the 100 Kc. signal disappears, reduce the 3-30 trimmer in the output of this multi-vibrator. What has happened is that the extra capacity and loading of the 10 Kc. multi-vibrator has pulled the 100 Kc. oscillator out of step with our 1,000 Kc. fundamental. Reducing the capacity mentioned will correct this condition.

With the receiver zero beat on one of the 100 Kc. points, it is most probable that audio tones will be heard. The resistor in the grid circuit of the 10 Kc. multi-vibrator should now be turned, and it will be noticed that there will be two or three points where no audible signals will be heard. Leave the resistance set to one of these and tune the receiver carefully, counting the number of beat notes between adjacent 100 Kc. points. If there are not nine, reset the resistor to another point of silence as described previously, always with the receiver zero beat to a 100 Kc. point, and again count the number of intermediate points, repeating the procedure until the correct number are obtained. If it is not possible to get the correct number within the range of the variable resistance, the fixed resistor in series must be altered above or below its present value as necessary.

If the method described above is followed carefully, no trouble will be had in setting up the 10 Kc. multi-vibrator. The writer had considered difficulty in picking the correct point on the resistor, until this method was evolved, as there are literally dozens of jumps this multi-vibrator will make in the travel of the resistor

After the correct point has been obtained, throw the output switch to its three positions, and make a final check to see everything is in order. Listening carefully to the output with a pair of phones, it is possible to hear the 10,000 cycle note.

Attention is now turned back to the 1,000 Kc. oscillator, and temperature compensation carried out as follows.

TEMPERATURE COMPENSATION In carrying out the temperature compensation it is essential that a very close indication of zero beat be obtainable. In the writer's case the communication receiver has an "R" meter, and is also capable of covering the broadcast band. All broadcast stations are on multiples of 10 Kc., and with the Frequency Divider switched to 10 Kc. and the output adjusted so that the signal level from both the broadcast station and the Divider are approximately equal, when zero beat is approached the "R" meter will begin to pulse, the pulses ceasing when exact zero beat is reached. This enables a much more accurate indication of zero beat to be obtained than is possible by ear, down to a few cycles in fact.

After allowing about 15 minutes for the oscillator to warm up, set to zero beat with the broadcast station. After a while the "R" meter will begin to pulse at a gradually increasing rate, so bring back to zero beat with the zero set control, noting whether the condenser had to be increased or decreased in capacity. If the capacity had to be decreased, the circuit is under-compensated, if it had to be increased the circuit is over-compensated. Assuming it is under-compensated, increase the value of C5 slightly, then reset the zero beat position on the main dial to centre with C2. Repeat the procedure until the "R" meter shows a slow pulse for two or more hours, when correct compensation is indicated.

It is remarkable how simple temperature compensation, such as this, will change an oscillator which drifts badly, to one which is highly stable judged by any standards, and must be carried out to be appreciated.

The Frequency Divider should be shielded in a metal case to reduce unwanted pick-up, and will be found a very useful piece of equipment to have in the shack, output being sufficient up to 54 Mc.

If it is desired to have outputs above this frequency, it is only necessary to connect a simple coil-condenser circuit between the output terminal, tuned to the frequency desired.

THE 1949 A.R.R.L. HANDBOOK

We take pride in announcing the publication of the 1949 edition of the "Radio Amateur's Handbook"—the Twenty-Sixth Edition of the Internationally recognised standard manual of Amateur Radio Communications.

The chapter on high-frequency receivers incorporates up-to-the-minute information in single side-band telephony receiving techniques and a wide variety of new constructional material, including an ultra-simple beginners' receiver, an improved audio noise limiter, selective i.f. amplifiers, band-switching pre-selectors, crystal controlled converters, and n.b.f.m. adapters.

The high-frequency transmitter section contains a wealth of practical information on the design and construction of Amateur transmitters, ranging from simple, easy-to-build units to completely new bandswitching transmitters. Particular emphasis is placed on measures for harmonic suppression and other means of preventing or solving television interference problems. New designs in stable variable frequency oscillators and practical, how-to-build-it constructional data round out the expanded transmitter section.

A handy new section on practical filter design is included in the power supply chapter, which has been rearranged for maximu mreadability. The Handbook also contains, in the usual fully-illustrated and ably-presented style, comprehensive treatment of keying methods and techniques, antennae and transmission lines and radio telephony. New gear is clearly pictured and described. Featured in the antenna section is a four-page addition of handy antenna and beam dimension graphs.

The wide field of Amateur very-high-frequency, ultra-high-frequency and microwave techniques and equipment is amply covered in the five-chapter Handbook section, with constructional data interestingly written and illustrated The Handbook moreover is invaluable for its well-organised information on assembling an Amateur Station, eliminating broadcast and television interference, recommended station operation practices, emergency operation and message handling.

Numerous charts, graphs and miscellaneous data are grouped for easy reference and utility. The practical vacuum tube data tables, long one of the outstanding features of the Handbook, are completely up to date, with information on all new types of tubes used in Amateur applications and having the tube base diagrams re-drafted for additional clarity.

The "Radio Amateur's Handbook" (Twenty-Sixth Edition—1949), by the Headquarters staff of the American Radio Relay League. The standard manual of Amateur Radio comunication, revised and re-styled in the light of current needs as a radio construction manual, reference work, and training text for class or home study. 736 pages, 6¼" x 9¼", including catalogue section and 10-page topical index. 1,651 illustrations, including 118 charts and tables, 77 basic formulae. Price 17/6, plus 1/1 postage. Our copy was made available by McGill's Authorised Newsagency, 183 Elizabeth Street, Melbourne.

Another Use For Small Rectifiers

BY E. H. COX,* VK2GU

Free availability for a couple of shillings each of an unlimited supply of low voltage, low current capacity copper oxide or selenium rectifiers offers an easy solution to the problem of aligning accurately the home-made, or for that matter, the commercially produced superhetrodyne.

The standard method of superhetrodyne alignment is to use the signal strength meter as a resonance indicator, but this is completely dependable only in those cases where the meter is operated on some portion of the final rectifier circuit—a fairly unusual set-up. If the R meter operates from any earlier section of the receiver, it tells nothing of the condition of resonance or otherwise of the final circuit, or circuits in the intermediate channel and, if a temporary indicator is inserted for alignment purposes, resonance is at least slightly disturbed when it is removed

The copper oxide rectifier may be permanently installed on the output winding of the speaker transformer for alignment or re-alignment as required. A lead is taken from each secondary terminal of the speaker transformer without disturbing the connection to the speaker voice coil. One is connected direct to a terminal installed on the speaker baffle or case. The second goes through a half-wave rectifier and a one watt carbon resistor to a second terminal.

A low reading milliammeter attached to these terminals as required becomes an output meter connected in parallel with the voice coil and forms a precise resonance indicator for lining the receiver when a signal of constant amplitude modulation is injected.

The value of the series carbon resistor will depend on the voice coil impedance of the speaker and the range of the meter, but some value between one thousand and five thousand ohms will be satisfactory.

Incidentally, if as should always be the case, it incorporates a crystal oscillator for checking, the station frequency meter makes an ideal source of modulated excitation for alignment purposes. All that is necessary is to tune in one of the crystal harmonics on the receiver and beat the variable frequency oscillator of the frequency meter against it. An excellent steady and delicately responsive deflection of the output meter results. The tone is readily variable over the complete range of audibility. It is further a constant amplitude signal of good wave form if oscillator and crystal are both working normally.

Finally, by suitably adjusting the ratio between injection from crystal and from variable oscillator, modulation at any factor up to unity can be achieved.

For alignment purposes keep the beat frequency low. A high modulation frequency may cloak the precise peak of a highly selective intermediate channel.

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W.I.A. Federal Executive Annual Report for 1948-49

In presenting this brief report on behalf of the Federal Executive, I would like to comment on the various fields of activity which have received attention by your Executive during this year

It is gratifying to note that the growth of all Divisions has been maintained, and that membership in practically all grades has increased, although it is considered that still greater efforts should be made to elevate associate members to full members wherever possible.

Most Divisions are providing educational facilities to those interested in Amateur Radio, and thereby assisting them to obtain the technical knowledge required to fit them for full membership.

With regard to our relations with the Postmaster General's Department, we have successfully negotiated with them in the release of new types of emissions and frequency allocations. Our contact with the officers of the Department has been maintained on the friendliest of terms and it is desired to record our gratitude to them for their co-operation and sympathetic attitude to all questions effecting Amateur Radio.

The Executive also desires to record with thanks, the tolerance and friendly co-operation of Federal Council Members, and State Officer of each Division, who have shown by their interest in Institute affairs, that spirit of good fellowship which is of paramount importance in the growth of a body such as ours.

Members will be pleased to note that arrangements have been completed with the R.A.A.F. regarding the establishment of a Reserve for those interested in Signals and Radar work. Details of these arrangements have been published in "Amateur Radio" and should serve to clarify the position to all members.

With regard to the publication of "Amateur Radio" this Executive desires to express its thanks to the Victorian Division, and its Magazine Committee, for their continued interest and untiring efforts to produce a magazine of topical and technical material of general appeal to all members. The magazine has been of inestimable value to the Institute and has been largely responsible for the growth and development of all Divisions.

Under existing Departmental regulations, the Amateur is permitted excellent opportunities for experimentation with a varied range of emissions and allocation of frequencies. It is essential that the Amateur must make effective use of these facilities, and it is therefore extremely important that a policy of co-ordinated effort be arranged on a Federal plane to justify their continuance. The magazine has proved an excellent medium for the co-ordination and promulgation of such technical material required to popularise these fields of activity. However there is considerable need for a constant supply of technical articles to the magazine for this purpose.

Your Executive has maintained and developed cordial relations with the I.A.R.U. and other overseas societies as regards general information and publicity of the work of the Institute and has submitted several important proposals for membership society comment, which are at present under consideration by those concerned. These proposals cover the adoption of a standard phonetic alphabet, standard International numbering system for contests, and publicity of contest results in member societies' magazines.

The Federal Contest Manager has put considerable effort into the drafting of rules and checking of contest results, so that the various Federal Contests conducted this year would be a complete success. However, the number of entries in both the National Field Day and Trans-Tasman could have been increased by further publicity over Divisional stations. It is hoped that all Divisions will persuade their members to take an active interest in future contests by more effective organisation. Rules will be published earlier in future.

Considerable activity has been shown by the Federal QSL Bureau Manager, who has handled 64,000 cards for the year, at a cost of 2.37d. per 100 cards. This work has been facilitated by smooth working of Divisional Bureaux and the efficient organisation of this department demonstrates the interest taken by all those taking part in this important phase of our activities. A total of 33 applications for W.A.C. and W.B.E. certificates was handled by this department.

Much of the work of the Federal Executive has been expedited by the use of the Federal Traffic Channel and the Federal Traffic Manager has maintained bi-weekly contacts with Divisional Traffic Officers for this purpose. Many hundreds of signals concerning Federal administration have been efficiently handled over this channel, which is commended to Federal Councillors for matters requiring prompt action.

The Federal Secretary has carried out a very considerable amount of correspondence and signals (776 letters and/or signals) on behalf of the Executive, and recorded the deliberations of some twenty-three executive meetings during the year. In conjunction with the Federal Traffic Manager and QSL Manager, the Federal Secretary has checked and recorded 36 applications for the DX C.C. Certificate. During the year many hundreds of membership certificates have been issued to Divisions. The financial commitment of Federal Executive has increased with rising costs and the Federal Treasurer advises that the overall receipts and expenditure is nearly double that of the year 1946.

Considerable work has been carried out by those members of Federal Executive responsible for technical and publicity matters. In addition, all members attend to matters under discussion with the P.M.G. Department and "Amateur Radio" Editorial Committee and have also shown, by their constant attendance at Executive Meetings, a sustained interest in the work and life of the Institute.

To all the above mentioned officers and members of the Federal Executive, I desire to express my thanks for the co-operation, active interest, and personal exertion displayed by them during the year 1948-9, and feel certain that by their untiring effort the Institute is assured of continued progress in the coming term of office.

WILLIAM R. GRONOW,

Federal President.

W.I.A. FEDERAL EXECUTIVE

Statement of Receipts and Payments for year ended 31st March, 1949.

RECEIPTS				PAYMENTS			
Cash in Hand and in Bank 1/4/48	£57	16	8	Federal QSL Bureau Advance	£10	0	0
N.S.W. Division duplicating constitution	3	3	0	Wyatt Earp QSL Cards (Vardon & Son)	14	9	10
N.S.W. Division Badges	3	9	6	Telegraphic Address	2	3	0
Western Australia Division Certificate contribution	7	15	6	Postage Certificates	3	10	0
South Australia Division Certificate contribution	18	5	0	Wreath—H. K. Love	2	0	0
Contribution to QSL Cards, E. McCarthy	3	0	0	Post Office Box	1	0	0
Per Capita Payments—				Victorian Division Copies "A.R."	1	5	0
Victoria Division	16	3	6	Secretary's Petty Cash	13	0	0
Tasmania Division	2	2	6	Bank Charges		1	0
Western Australia Division	3	11	6	Convention Minutes (A. Brown)	10	10	0
South Australia Division	25	10	0	Cash in Bank, 31/3/49	87	8	10
Queensland Division	4	4	6				
	£145	1	8		£145	1	8

I have examined the Cash Book, accounts and vouchers of the Federal Executive of the Wireless Institute of Australia for the year ended 31st March, 1949, and have obtained all the information and explanations requested. In my opinion the above statement correctly sets out the financial position of the Federal Executive as at 31st March, 1949, and the transactions for the year ended on that date.

13th April, 1949.

THOS. F HISCOCK, F.C.A., Auditor.

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SPECIALLY DESIGNED FOR THE AMATEUR

A British-made Communications Receiver with Outstanding Performance on Amateur Bands

The Eddystone "640" Receiver has been designed in very close collaboration with leading British DX Amateurs to ensure that it possesses the special requirements expected by Amateur Operators.

An outstanding feature of the "640" is its unusually high signal-to-noise ratio, an attribute which enables the receiver to bring in, under adverse conditions, weak DX signals with a high degree of intelligibility. This fact can be proved by actual demonstration alongside other receivers of similar characteristics. One of the secrets of this important feature is the use of a single high gain, high efficiency R.F. stage. This design is supported by the opinion of skilled radio engineers. Air dielectric trimmer condensers and permeability-tuned coils contribute materially to the high sensitivity of the "640". The 1600 Kc. I.F. stages and the modern design crystal filter provide high adjacent channel selectivity and large attenuation of image signals. The Eddystone "640" provides a tuning range of 1.7 Mc. to 32 Mc. in three bands, thus offering excellent band-spread. An "S" meter is available and may be plugged in at the rear of the receiver.

To the Country Amateur the "640" offers the excellent feature of being capable of operation from a 6 volt vibrator power unit in addition to the normal 110 to 250 volt 50/100 cycle mains.

Ask your nearest Distributor for a Demonstration and for details of Terms

- **VICTORIA: J. H. MAGRATH & CO., 208 Little Lonsdale Street, Melbourne.**
- **N.S.W.: JOHN MARTIN PTY. LTD., 118-118 Clarence Street, Sydney.**
- **Q'LAND: CHANDLERS PTY. LTD., Cnr. Albert and Charlotte Streets, Brisbane.**
- **WESTERN AUST.: CARLYLE & CO. LTD., Hay Street, Perth, and 397 Hannan Street, Kalgoorlie.**
- **SOUTH AUST.: GERARD & GOODMAN LTD., 192-196 Rundle Street, Adelaide.**
- **TAS: W & G. GENDERS PTY. LTD., 53 Cameron St., Launceston, and Liverpool St., Hobart.**

N.S.W. Factory Representatives: J. B. CHANDLER Pty. Ltd., 116-118 Clarence St., Sydney.

Australian Factory Representatives: R. H. CUNNINGHAM & CO., 420 William St., Melbourne, C.1

Minutes of the Nineteenth Annual Federal Convention

At the Federal Convention, held at Melbourne from 15th April to 18th April, 1949, the following were in attendance.—Mr. W. Gronow VK3WG, Federal President; Mr. G. Glover VK3AG, Federal Vice-President, Mr. G. Manning VK3XJ, Federal Publicity Officer, Mr. W Mitchell VK3UM, Federal Secretary, Mr. P Evans VK3OZ, Federal Treasurer, Mr. J. Moyle VK2JU, N.S.W Delegate; Mr. R. Cunningham VK3ML, Victorian Delegate, Mr H. MacGregor VK4ZU, Queensland Delegate; Mr. E. Barbier VK5MD, South Aus. Delegate; Mr. H. Austin VK5AW, South Aus. Observer; Mr. G. Moss VK6GM, Western Aus. Delegate, and Mr. J. Brown VK7BJ, Tasmanian Delegate.

AGENDA ITEMS

1 Moved N.S.W., Seconded Vic.: "That the opening of the Federal Executive Station VK3WIA be expedited." Voting For—VKs 1, 3, 6, 7, F.E.; Against—VKs 4, 5.

2. Mov. N.S.W., Sec. S.A.: "That the pre-war system of holding Conventions in each State in rotation be reverted to." Voting: For—VKs 2, 4, 5, 6, F.E.; Against—VKs 3, 7

3. Mov. N.S.W., Sec. S.A.: "That the policy of determining the location for Federal Executive between Divisions in rotation be re-adopted." Voting For—VKs 2, 3, 5; Against—VKs 4, 6, 7, F.E.

4. Mov. W.A., Sec. S.A.: "That Federal Executive be instructed to take the necessary action to amend item 9 of the Federal Constitution by deleting the words 'following the termination' and inserting the words 'prior to the commencement'" Voting: For—VKs 2, 3, 5, F.E.; Against—VKs 3, 4, 7

5. Mov. W.A., Sec. S.A.: "That F.E. be instructed to take the necessary action to amend item 9 of the Federal Constitution by deleting the words 'by a majority of the voting members of the respective Division,' and inserting 'from the voting membership of the Division by the Divisional Council'." Voting: For—VKs 3, 6, F.E.; Against— VKs 2, 3, 4, 7.

6. Mov. N.S.W., Sec. Tas.: "That Federal Council re-examine and restate the Institute's policy concerning the Amateur Advisory Committee." Carried unanimously.

After discussion of this matter it was Mov. N.S.W., Sec. Q'ld.: "That the policy of the Institute is that it approves of the existing rules of the Amateur Advisory Committee." Carried unanimously.

7. Mov. Vic.: "That the Federal Council immediately takes over the publication of 'Amateur Radio'." The motion lapsed for want of a seconder

Mov. Vic., Sec. W.A.: "That in order to avoid continued loss on 'Amateur Radio' that the price of the magazine be increased to ninepence (9d.) as from the May 1949 issue."

An amendment to the above motion was Mov N.S.W., Sec Tas.: "That the Divisions be asked to ratify that the price of 'Amateur Radio' be raised to ninepence (9d.) to avoid continued loss and that a decision be conveyed to F.E. within thirty (30) days from the rising of this Convention." Voting For—VKs 2, 3, 4, 6, 7, F.E., Against—VK5.

The amendment was carried and became the motion and voting on the motion was the same.

8. Mov Vic., Sec. Q'ld. "That F.E. approach the P.M.G's. Department with a view to obtaining frequencies adjacent to the amateur bands for emergency networks.' Carried unanimously

9. Mov. Tas., Sec. W.A.: "That F.E. approach the P.M.G's. Department to relax the requirements at present insisted upon for the issuance of Amateur Licences to blind persons and others who may be similarly handicapped." Voting For—VKs 4, 7, 8; Against—VKs 2, 3, 5, F.E.

10. Mov. Tas., Sec. S.A.. "That action be taken by F.E. and all Divisions to publicise the agreement reached on phone-c.w. allocations as per item 39 of the 18th Federal Convention." Voting. For—VKs 2, 3, 5, 6, 7, F.E.; Against—VK4.

11 Mov S.A. "That the division of Amateur bands under a gentleman's agreement be as follows 3500 3580 c.w., remainder phone, 7000 7050 c.w. remainder phone, 14000-14100 c.w., remainder phone, 21000-21150 c.w., remainder phone (when allocated); 28000 28150 c.w., remainder phone." The S.A. Delegate withdrew this item from the Agenda in view of Item 10.

12. Mov S.A.: "That the P.M.G's. Department be asked to provide a new experimental licence for all Amateur Stations." The motion lapsed for want of a seconder

13. Mov. S.A., Sec. Tas. "That F.E. be instructed to approach the P.M.G's. Department to obtain an agreement that the age limit for the A.O.C.P. and station licence be reduced to 14 years." Voting For— VKs 5, 6, 7; Against—VKs 2, 3, 4, F.E.

14 Mov. S.A., Sec. W.A.. "That F.E. approach the P.M.G's. Dept. to allow experimental licence fees to be paid in the State of the holder." Voting. For—VKs 5, 6; Against—VKs 2, 3, 4, 7, F.E.

15. Mov. Q'ld. "That F.E. approach the P.M.G's. Dept. with regard to the use of a.s.a.c. transmission." The Queensland Delegate withdrew this motion as permission has already been granted.

At this stage of the proceedings, the Fed. Sec. protested against the action of Queensland in releasing news of the release of a.s.a.c. without checking with Headquarters and thereby causing confusion amongst other States. The Queensland Delegate expressed regret for the action of his State.

16 Mov Q'ld., Sec N.S.W "That F.E. approach the P.M.G's. Dept to ensure that the Broadcast Listener's Licence be supplementary to the Amateur Licence." Voting: For—VKs 2, 3, 4, 5, 6; Against—VK7, F.E.

17 Mov. S.A., Sec. N.S.W "That F.E. be instructed to make strong representations to the P.M.G's. Dept. to amend the regulations covering interference with B/C reception so that no action will be taken against an Amateur where the receiving equipment is not of efficient design or which equipment is incorrectly installed." Voting: For—VKs 2, 3, 5, 6, 7, F.E., Against -VK4

F.E. desires recorded that all Divisions be requested to forward details of all cases as they occur and cases within the last twelve months, to assist them in presenting a case

18 Mov Q'ld "That permission be sought for the use of n.b.f.m. on the 3.5 Mc. band" The Q'ld. Delegate withdrew this motion as permission has already been granted.

19. Mov. N.S.W., Sec. Tas.: "That F.E. be instructed to approach the P.M.G's. Dept. to obtain permission for slow morse broadcasts on the 7 Mc. band once per week." Voting For—VK2; Against—VKs 3, 4, 5, 6, 7, F.E.

20. Mov. Q'ld., Sec. S.A. "That all Amateurs compulsorily fit to their transmitters means to automatically prevent overmodulation and splatter to phone transmissions." F.E. drew the attention of Federal Council to Regulation 89 of the P.M.G's Handbook Voting For—nil, Against—VKs 2, 3, 4 5, 6, 7, F.E.

21 Mov W.A., Sec. S.A.: "That immediate steps be taken to ensure effective action in clearing Amateur bands of commercial QRM, that observers be appointed in all States, and F.E. prepare a schedule of requirements. It is felt that observers' logs should be forwarded to a central body. Also F.E. should also endeavour to procure from the P.M.G's. Dept. a progress report on action taken to date." Voting: Carried unanimously.

22 Mov. W.A., Sec. Vic. "That F.E. approach the P.M.G's. to request the re-introduction of the c.w. probationary period." Voting For—VKs 3, 6, Against—VKs 2, 4, 5, 7, F.E.

23 Mov N.S.W. Sec Tas.: "That the privileges extended to certain Amateurs to playback transmissions be discussed."

After discussion of this matter it was Mov. N.S.W., Sec. W.A.: "That F.E. be instructed to approach the P.M.G's. Dept. with a view to obtaining the privilege of playback transmissions for all Amateurs as is done in other countries." Voting Carried unanimously

24 Mov. N.S.W. "That the N.Z.A.R.T. be invited to join in the Remembrance Day Contest for 1949 and subsequent years." The N.S.W Delegate submitted additional information in terms of Sec 54 of the Federal Constitution. It was decided after discussion that the original decision of the Council on this matter shall stand.

25 Mov N.S.W "That the Trans-Tasman Contest be eliminated." The motion lapsed for want of a seconder

26 Mov N.S.W. Sec Vic "That F.E. take immediate action to advise results of overseas contests to all member societies of the I.A.R.U. for printing in member society journals. If this procedure is found impracticable that F.E. take action to supply these member societies with sufficient copies of results for distribution by these societies to their interested members." Voting Carried unanimously

27 Mov Q'ld., Sec S.A. "That the time of the DX Contest (or Contests) be changed to June or July instead of November as at present" Voting For—VKs 4, 5, 7, Against—VKs 2, 3, 6, F.E.

28. Mov Q'ld., Sec. S.A "That for the 1949 DX Contest the period of operation be 24 hours or less."

After discussion the following motion was adopted "That the Council reaffirms the decision reached under item 50 of the 18th Convention concerning the period of operation of the 1949 DX Contest and that the F.E. should publicise this aspect more fully in future contests." Carried unanimously

29. Mov. S.A.: "That an entrant in contests be allowed to use any number of hours operating during the Contest provided that he does not exceed the actual specified limit, the number of hours not necessarily to be consecutive hours of operating." The S.A. Delegate withdrew the motion in view of the decision reached in item 28.

30. Mov N.S.W., Sec. Q'ld.: "That F.E. arrange for monthly contacts between the W.I.A. stations to exchange views, problems of interference and general improvements of official broadcasts." Voting For— VKs 2, 4, 6; Against—VKs 3, 5, 7, F.E.

31. Mov. W.A., Sec. Q'ld.: "That in order that all members be informed fully of W.I.A. F.E's. actions, a full list of the prepared Agenda be printed in 'Amateur Radio.' Further that in a subsequent issue of 'Amateur Radio' after Convention date, a full summary of motions passed, rejected and altered be printed. Finally, three months before the next Convention, dated summary of action on the motions passed at the last Convention be given." Voting For—VKs 2, 3, 4, 6; Against—VKs 5, 7, F.E.

Mov F.E., Sec. N.S.W., "That a discussion be held on obtaining speedier ratification of motions and actions required between Conventions, placed before the Divisions by F.E. on behalf of Federal Council."

After discussion had taken place the following was Mov. N.S.W., Sec. W.A.: "That this Council considers the ratification of Federal matters at the earliest possible moment is of paramount importance." Voting: For—VKs 2, 3, 4, 5, 6, 7; F.E. abstained from voting.

The Fed. Sec. desired it recorded that all Divisions would adopt a numbering system for memos and signals. Each Division would prefix the memo number by their State letter as follows N.S.W N, Vic V Q'ld Q, S.A S, W.A. W, and Tas. T Signals sent over the Traffic Channel would have State prefix followed by S, e.g. signal from Q'ld. would bear the prefix QS 49/——. A memo from N.S.W. would bear the prefix N 49 —— (the 49 in each case being the year) The adoption of this procedure would greatly facilitate speedy reference to any matter All Delegates gave verbal agreement to this procedure

32 Mov F.E., Sec Tas. "That the Divisions give effect urgently and with priority to the relevant Sections of the Federal Constitution affecting preparation for Conventions." Voting: Carried unanimously

ITEMS OF GENERAL BUSINESS

All Divisions to ratify all items under this heading.

At the commencement of the session on Sunday, 17th April, 1949, it was announced that the Chairman was unavoidably absent. It was then moved by the N.S.W., Delegate and seconded by the W.A. Delegate that Mr G Glover take the chair. This motion was carried unanimously and Mr. Glover acted as Chairman for this session of the Convention. The Victorian Delegate was absent from this session.

1. Mov. S.A., Sec. N.S.W. "That the Convention discuss the rules of the W.A.S. Certificate with a view to finalisation."

After discussion it was moved by S.A., Sec. by N.S.W "That the W.A.S. Rules be re-drafted on a basis that the Certificate be awarded for verifications from, (a) N.S.W., A.C.T., or Lord Howe Island, (b) Vic., (c) Q'land, (d) S.A., (e) W.A., (f) Tas., and (g) Nth. Territory." Voting: For—VKs 2, 4, 5, 6, 7, F.E. The W.A. Delegate desired recorded that he is in favor of the motion with the exception of the inclusion of Nth. Territory

2 Mov N.S.W., Sec. Q'ld.: "That F.E. be requested to organise a contest, with trophy, to be conducted annually on the v.h.f. bands during the summer months, to include New Zealand Amateurs, and that provision should also be made for a trophy for competition amongst interested v.h.f. listeners." Voting: For—VKs 2, 4, 5, 6, 7, F.E.

3. Mov F.E., Sec. S.A., "That an annual allocation not exceeding £9/9/- for trophies or prizes be made for the National Field Day Contest for division between each of the three sections." Voting: For—VKs 2, 4, 5, 6, F.E.; Against—VK7.

4 Mov. N.S.W., Sec. W.A.: "That F.E. issue immediately upon completion of the Convention each year a calendar showing the following information. dates of all known contests, local or overseas, dates any new regulations are expected to become operative, and dates of any importance in Federal administration, etc." Voting: For—VKs 2, 4, 5, 6, 7, F.E.

5. Mov. W.A., Sec. F.E.: "That the Remembrance Day Contest Rules be modified by the inclusion of a multiplier to the State entry, based on the proportion of State entrants from the total number of licences issued in that State as shown in the official P.M.G. lists on that date." Voting: For—VKs 2, 4, 5, 6, 7, F.E.

6. Mov. Q'ld., Sec. W.A.. "That a discussion take place on "Gremlin" and the future publication of his column."

After discussion had taken place on this subject and after the explanation offered by F.E., the Q'land Delegate was satisfied on this matter

7. Mov Tas.: "That F.E. approach the P.M.G's. Dept. for allocation of bands for the control of model aircraft and such like purposes." In view of the information received from F.E., the Tas. Delegate withdrew the motion.

8. Mov. W.A., Sec. Tas.: "That the P.M.G's. Dept. be approached to permit the transmission of telephony and c.w. in plain language instead of such transmission being restricted to the English language as at present." Voting. For—VKs 2, 4, 5, 6, 7, F.E.

9. Mov S.A., Sec. N.S.W.: "That F.E. approach the P.M.G's. Dept. to clarify the position with regard to the period of issue of portable licences." Voting For—VKs 2, 4, 5, 6, 7, F.E.

10. Mov. W.A., Sec. S.A.: "That the W.I.A. inform the P.M.G's. Dept. that it views with alarm the large amount of transmission equipment which has found its way via Disposals into the hands of unlicenced owners." Voting: For—VKs 2, 4, 5, 6, 7, F.E.

11. Mov N.S.W.: "That the F.E. approach the P.M.G's. Dept. with a view to ensuring that no charge be made for the Handbook for the Guidance of Amateur Operators." The motion lapsed for want of a seconder.

The Chairman and the Victorian Delegate were again in attendance at the opening of the last session.

12. Mov. Vic., Sec. W.A.: "That the F.E. communicate with the I.A.R.U. with a view to obtaining additional publicity space for the W.I.A. in "QST." Voting For—VKs 2, 3, 4, 5, 6, 7; F.E. abstained from voting.

13. Mov. Vic., Sec. N.S.W.: "That the call sign of the F.E. station be VK1WIA." Voting: For—VKs 2, 3; Against—VKs 4, 5, 6, 7; F.E. abstained from voting.

14. Mov. Vic., Sec. W.A.: "That the cost of the Federal Convention entertainment be included in the Convention expenses." Voting. For—VKs 2, 3, 4, 5, 6, 7; F.E. abstained from voting.

15. Mov. Vic., Sec. N.S.W., "That all call signs in the P.M.G. Callbook be followed by the name and address of the holder of such call sign." Voting: For—VKs 2, 3; Against—VKs 4, 5, 6, F.E.; VK7 abstained from voting.

16. Mov. Vic., Sec. W.A.: "That all cases of b.c.l. interference be brought to the notice of the A.A.C. in the appropriate Division for assistance and guidance to the Amateur concerned." Voting: For—VKs 2, 3, 4, 5, 6, 7; F.E. abstained from voting.

17. Mov N.S.W.: "That Federal Council considers the rules concerning Branches as in operation in N.S.W with a view to their inclusion in the Divisional Constitution."

Having considered the above, the N.S.W. Delegate desired recorded that he tables the provisional rules for the establishment of Divisional Branches as in operation in N.S.W. Division with the suggestion that F.E. might use them as a basis for the appropriate section of the uniform divisional constitution now in preparation.

18. Mov. N.S.W., Sec. S.A.: "That the principle of the use by Member Clubs of a small replica of the W.I.A. emblem with the words 'Member Club' beneath be agreed to." Voting: For—VKs 2, 4, 5, 6, 7, F.E.; VK3 abstained from voting.

19. Mov. S.A., Sec. W.A.: "That the Convention discuss Convention Delegates' expenses."

After the matter had been discussed the S.A. Delegate expressed his satisfaction.

The Q'land Delegate asked for an explanation of the payment of Delegates' expenses to the 18th Convention. It was pointed out that there was no intention by that Convention to pay delegates' expenses for that year.

20. Mov. W.A., Sec. F.E.: "That Divisions publicise the fact that members in outlying districts may obtain their copies of 'Amateur Radio' by airmail by making necessary arrangements through their Divisional Council. Such extra expense to be borne by the member." Voting: Carried unanimously.

21. Mov N.S.W.: "That Federal Councillors receive a report from the F.E. on the progress of the Divisional Constitution."

After discussion it was moved "That N.S.W. Delegate Mr. John Moyle to prepare a first draft copy of the uniform divisional Constitution in collaboration with F.E." Voting For—VKs 3, 4, 5, 6, F.E.; VKs 2 and 7 abstained from voting.

22. Mov. Tas.: "That the necessity for a majority of voting members for Federal Councillors be determined."

After discussion the following was moved by Tas., Sec. N.S.W. "That F.E. be instructed to take steps to have item 9 of the Federal Constitution amended to read: 'That each representative of a Division on the Federal Council shall be elected annually during the period of sixty days immediately prior to the commencement of the annual Federal Convention by the voting members of the respective Division'."

An amendment to the above motion was moved by Vic., Sec. Q'ld.: "That the words appearing after the word 'Convention' be struck out'." Voting: For—VKs 3, and 4, Against—VKs 2, 5, 6, 7, F.E.

The amendment was lost and voting for the motion was For—VKs 2, 3, 4, 5, 6, 7, F.E.

23 Moved F.E. "That the views of the delegates be obtained on the formation of the R.A.A.F. Reserve." Discussion took place.

24. Treasurer's estimates for the year 1949-50 were submitted, a total of £279/10/- being made up as follows: QSL Bureau £10, Printing and Stationery £10, Fees £6, Contest Printing and Postage £7/10/-, Contest Trophies and Prizes £25, Petty Cash, Postage and Telegrams £15, Entertaining £5, Convention Minutes £12, Convention Expenses £150, Convention Dinner £20, Contingencies £20, a total of £279/10/-.

The above estimates are based on the assumption that the 20th Convention will be held in Melbourne.

25. That the location of the 20th Annual Convention be determined.

Moved by Tas., Sec. N.S.W.: "That in view of the extra expense of holding the Convention elsewhere, that the next Convention be held in Melbourne at Easter. Voting: Carried unanimously.

FIFTY MEGACYCLES AND ABOVE

Compiled by J. K. RIDGWAY, VK3CR.

From this month onwards a new presentation of Fifty and Up will appear. Instead of the notes appearing under separate Divisional headings, the material will be used to make up an article which will attempt to give an overall picture of v.h.f. doings in Australia. In this way much duplication will be avoided and it is hoped that the continuity will be improved. Acknowledgment is due to VKs 2AH, 3IM, 5PS, 5FC, and Pete Frith for material used in this article.

The V.H.F Section of the N.S.W Division held their monthly meeting on the 13th May at 8 p.m. Attendance was 34 including some visitors. The Sydney Division of the W.I.A. was represented by Mr. Hicks and Mr. McNaughton. They confirmed reports of F.H.Q. interest in v.h.f. work. The business of the meeting was for the purpose of re-election of officers. The new officers are: Chairman and President, Vaughan Wilson 2VW, Vice-President, Alan Llewelyn 2AH, Secretary, Cecil Cronin; Publicity Officer, Alan Llewellyn 2AH. Thanks and appreciation for his splendid work were extended to the retiring Chairman and President, Charlie Fryar 2NP. Mr. Fryar thanked all for their past co-operation and wished the new officers every success. After the debate the new officers took their posts for the latter half of the meeting. The new President (2VW Mr. Wilson) took the chair and Mr. Cronin assisted with the minutes. Several matters regarding 2 metre affairs and contest were discussed. Mainly points of contest rules.

A debate upon antennae followed. The title being "That Horizontal is better than Vertical Polarisation." The debate was a huge success. The members found in favour of vertical by a show of hands. Vertical being very simple to erect. Horizontal giving better S/N ratio normally. An outline of lectures forthcoming indicates an excellent year for members. Come along and enjoy yourself.

50 MEGACYCLES

50 Mc. appears to have taken the E.O. pretty generally throughout VK during the past month. In N.S.W. the main reasons have been 28 Mc. DX and the 2 metre contest. However, despite the fact that DX conditions have almost disappeared many excellent contacts have been made. Surprise of the month was 2LY's contact with 7XL at 2120 hours on 14/5/49. VK3 signals were also heard. QSB has been very noticeable in VK3, particularly on cool evenings. 2BZ at Newcastle can be contacted almost any time by the more favourably located Sydney stations. Dave's n.b.f.m. is excellent. 2JU continues to contact 2GU in Canberra on sked, sometimes with difficulty due to noise. 2TA, at Young, was heard early in the month by 2AH, but was not raised. New beam has improved 2TA's signal. 2BU has a consistently solid signal which is always clean and nice copy.

Lack of work on 50 Mc. in Victoria appears still to be due to the gang's pre-occupation with 576 Mc. Insofar as Melbourne stations are concerned. Features of the band in VK3 last month were the excellent contacts that were consistently made over paths of 100-150 miles. 3UI (Tatura) and 3APF (Shepparton) continue to supply the Melbourne and Mornington peninsula gang with interesting contacts on Saturday nights, and it's amazing how consistent signals are over the 100 and 140 mile path respectively. A successful 5-way was held over this path on 30th April, stations participating being 3RR, 3ACL, 3ABA, 3UI, and 3APF.

3TH at Yinnar continues skeds on Mondays and Thursdays at 2030 with 3HK, yet despite the good signal he puts in he rarely has any other contacts. How about it Melbourne gang! Little in the way of DX last month in VK3, the only occasion being at 2030 on the 23rd April when 3ABA heard 4BT at S7 for a short while.

50 Mc. news from Western Australia shows that 6WG at Albany worked 6RT and 6CU on April 20 but the band was only open for a short while. Wally must have a good location. He says that he has made eight contacts with Eastern States every month for the past six months. No Interstate signals have been heard in Perth since January. 6FC made first two-way contact with 6GS at Harvey on the evening of 1st May. 6GS put in a steady S3 c.w signal. He has for some time been able to receive 6FC's phone R5 S6, but not until 1st May was his signal heard in Perth. Harvey is about 80 miles from Perth. 6DW at Bruce Rock, about 150 miles from Perth, could read 6FC's phone signal which peaked at S5, but 6FC has not yet heard 6DW. Don only wants a VK6 for W.A.S.! 6GB has been heard after several months absence. Jack is using portable gear with about 6 watts input on c.w. 6FC puts in a plea for more 50 Mc. activity in VK6.

144 MEGACYCLES

Highlight of this band in N.S.W. was the Gladesville Radio Club's novel field day. Ten stations in the field had to position each other from bearings obtained. The control station distance was known to each participant and by calling for bearings of other stations to the control, triangular plotting was possible. This allowed each contestant to mark his map showing location of all stations.

It was amazing to hear the number of stations (approx. 35) working all day on 2 metres. This field day was the best so far held and already enquiries about the next can be heard. Stations in the field were 2HL, 2IT, 2NP, 2VM, 2WV, 2ZB, 2AMO, 2AMP, and 2ABG. Other call signs were among members of field parties.

2AWZ has 6J6 mod. osc. going nicely and very stable. Another clean signal belongs to newcomer 2AST, Alan Tollow. Allan also has super-regen. receiver with concentric line r.f. stage. 2ANB is using a 522 with a corner reflector and is putting out a nice signal. 2AH, with 4 over 4, has contacted 2ADT at Cessnock on two consecutive evenings. 2DP has made reappearance with mod. osc. and super-regen. receiver. 2QW with 522 and 3 over 3 beam is going nicely. 2MQ has very nice receiver: two 6J4 grounded grid r.f. stages, 6AK5 mixer. It helps to make up for his location. 2HO is to be congratulated upon fine signals out of "Hart Hollow" at Roseville. An 829B and a stacked 3 over 3 are responsible. 2ARO has a 522 and a stacked 3 over 3 antenna under adjustment at time of writing. 2WJ also uses 522 transmitter and ASV receiver, with both vertical and horizontal beams. 2AZ has clean signal using an E1148. 2VW is getting an 829B ready on 144. Vaughan has excellent punch with his 2 metre portable rig. New South Wales stations using n.b.f.m. are 2MQ, 2QW, 2ANB, and 2AH.

In Victoria the band was rather quiet last month with not as much activity as would be expected. The only new station to put in an appearance was 3TF. He is using a converted 522 as the transmitter with the popular 6AK5-6AK5-6J6 band-pass converter feeding into the 522 i.f. channel for receiving. Gordon puts out a good signal via a three element series-phased beam. 3WL has a receiver working and should soon be in a position to transmit. 3ZL, of Ballarat, has sent his trough line converter down to Melbourne and it has been doing the rounds of the 144 Mc. gang. First to have it was 3ABA who found it to be somewhat better than his ASV receiver, and using it he was able to work 3GM in Ballarat for the first time. 3HK was the next to try the converter and Keith found it considerably better than his 522 receiver section. He too has been able to work cross-band with 3ZL. Keith has also built up a noise diode and will be able to obtain comparison between various receivers both on 50 and 144 Mc.

Some contacts have been made between Ballarat and the Geelong area, a distance of about 55 miles. 3GM and 3ZL in Ballarat have worked 3BW (Portarlington) and 3VF (Drysdale). In Geelong 3AKE works on 144 Mc quite a lot and has worked 3ABE with good signals. Ed's BL4 receiver is quite hot on 144 Mc. now. 3ALO has been having condenser trouble but hears the Geelong gang at good signal strength.

In South Australia new recruits to 144 Mc. include Treasurer Gordon Bowen 5XU and 5ME. Both are using n.b.f.m.

From Tasmania Pete Frith announces that he will be shortly having a c.c. 144 Mc. transmitter permanently installed on Rosny Hill, from which location he expects to put in a good signal into most parts of Hobart. So any of the Southern zone gang who want signals are invited to toss up skeds by ringing Bel. 132.

7BM is back in circulation and is cranking up the parallel rod oscillator again. It is reported that it oscillates much more readily on 288 Mc than on 144 Mc. From the Northern Zone we hear that 7BQ now has a c.c. rig using 6C6G on 8 Mc. 6V6 tripler, 832 tripler to 144 Mc., driving an 829. Receiver is a super-regen. A new four element wide-spaced beam (properly matched this time) is responsible for improvement in 7BQ's signals. 7TB, is using an RK34 oscillator with an RK34 p.a. Receiver is a super-regen. with a three element close-spaced beam about 45 ft. high. 7DB uses RK34 osc. and 815 p.a. with a superhet receiver and three element beam 10 ft. high. 7AK has not yet been on but has been transferred to Flinders Island, so it looks like DX for the VK7 gang to work. Pete Frith is building a band-pass converter using 713A, 717A, r.f. stages, 9003 mixer and 9002 oscillator.

576 MEGACYCLES

Victoria appears to be the only State bitten by the 576 Mc. bug. In this State a great deal of interest continues to be shown and activity has been at a high level during the past month. 3ANW (portable call of 3NW) has taken his gear to a number of high locations and some very interesting contacts have been made. The first excursion was on the 25th of April when Ken went to Mt. Dandenong. He was using his 24 element beam (12 driven elements and 12 reflectors) for the first time and contacted 3ABA (S7 both ways). 3IM (S7-8 both ways) and 3XA (gave S8-9 and received S9 plus). This outing showed that superhet receivers, such as the one 3XA was using, are superior to super-regens., but of course the latter are quite useable and give good results. The best distance covered was about 20 miles.

On the 8th of May 3ANW went to Beckett Park, Balwyn, approx. 400 ft. above sea level and heard signals (S7) from 3RR fixed portable at McRae. Unfortunately two-way contact was not established as Dick's receiver was not working, but the distance (about 40 miles) was the best yet covered by a 576 Mc. signal. On the same occasion 3ANW worked 3IM with S9 plus signals both ways, the distance, however, being only about 3 miles.

3DA is now established on the band for two-way work, having built up push-pull RL18s and has worked 3RR and 3XA. 3EH has put up a 16 element beam and is able to transmit and receive on the band. However Ern has no active stations close to him and has not been able to work over the hills to the others on the band at the time of writing.

S.S.S.C. TRANSMISSIONS

VK7LE is one of the first Australian stations to use single sideband suppressed carrier, since its authorisation by the P.M.G's. Department for Amateur use. We have been advised that he will be on the air on s.s.s.c., Thursday evenings 8 to 9, and Sunday mornings 8 to 9, transmitting on a frequency of 7140 Kc.

Hints on how to receive these transmissions are described on page 4 in this issue, and an article on the equipment used by VK7LE will be appearing shortly in "Amateur Radio."

3ABA has push-pull RL18s going as a transmitter and uses separate quench at 85 Kc. when receiving. Jim has worked 3ANW as mentioned before, and should make other contacts before long. 3CR has put up a corner reflector with folded dipole driven element, the reflectors consisting of two one wavelength sides using 10 reflector elements spaced 0.1 wavelength. He claims he was incorrectly reported in last month's issue as building a converter using 6C4 osc. and VR65 diode mixer. Actually the thing is a complete receiver using five stages of i.f. at 35 Mc with 6AG5s. The diode mixer will take the third harmonic from the oscillator which will operate on a fundamental of 180-185 Kc. The i.f. stages are just about tamed now and work is proceeding on the r.f. end. Incidentally congratulations are in order to 3XA. Don took unto himself a wife on Saturday, 21st May. All the v.h.f. gang in VK3 join in wishing him every happiness.

2300 MEGACYCLES

Interesting news from 3QO who has a GL446B lighthouse tube working in a three-quarter wave coaxial line oscillator on this band. Mac finds output fairly good but adjustments are critical. Construction is simple, the outer section being made out of copper sheet and thus it is seen that a lathe is not a necessity for those who wish to make gear for these frequencies.

FEDERAL, QSL, and DIVISIONAL NOTES

Federal President: W. R. Gronow, VK3WG; Federal Secretary: W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne.

NEW SOUTH WALES

Secretary.—Dick Dowe (VK2RP), Box 1734, G.P.O., Sydney

Meeting Night.—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney

Divisional Sub-Editor.—H. F Treharne, VK2BM, 5 Waimea St., Burwood.

Zone Correspondents.—**North Coast and Tablelands:** P. A. H. Alexander, VK2PA, Hill St., Port Macquarie, **Newcastle:** E. J Baker, VK2FP, 13 Skelton St., Hamilton, Newcastle, **Coalfields and Lakes:** H Hawkins, VK2YL, 27 Comfort Ave., Cessnock; **Western:** G. J. Russell, VK2QA, 116 Began St , Nyngan, **South Coast and Tablelands:** R. H Rayner, VK2DO, 42 Pettit St., Yass; **Southern:** E. N Arnold, VK2OJ, 678 Forrest Hill Ave., Albury; **Western Suburbs:** A. G. Pearce, VK2AHB, 48 Harrabrook Ave., Five Docks, **Eastern Suburbs:** H. Kerr, VK2AX, No. 4 Flat, 144 Hewlett St., Bronte, **North Sydney:** L. D. Cuffe, VK2AM, 779 Military Rd., Mosman; **St. George:** J. A. Ackerman, VK2ALG, 52 Park Rd., Carlton; **South Sydney:** V. H. Wilson, VK2VW, Cr. Wilson St. and Marine Pde., Maroubra.

VICTORIA

Secretary.—C. O. Quin, VK3WQ.

Administrative Secretary.—Mrs. O. Crom, Law Court Chambers, 191 Queen St., Melbourne, C.1.

Meeting Night.—First Wednesday of each month at the Radio School, Melbourne Technical College.

Zone Correspondents.—**North Western:** R. E. Trebilcock, VK3TL, 122 Victoria St., Kerang, **Western:** C. C. Waring, VK3YW, 12 Skene St., Stawell; **South Western:** W. H. Ross, VK3UT, Ballange.ch, via Warrnambool; **North Eastern:** J. A. Miller, VK3ABG, "Erinvale," Avenue.; **Far North-Western Zone:** Harry Dobbyn, VK3MF, 48 Walnut Ave., Mildura, **Eastern Zone:** Mrs. P. M. Churchward, VK3US, "Shirley," Red Hill.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI.—Sundays, 1100 hours EST 7196 Kc. and 2000 hours EST, 50.4 Mc. No frequency checks available from VK2WI. Intra-State working frequency, 7175 Kc.

VK3WI. Sundays, 1130 hours EST, simultaneously on 3580 and 7196 Kc. and re-broadcast on 50 and 144 Mc. bands. Intra-State working frequency 7185 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air

VK4WI.—Sundays, 0900 hours E.S.T. simultaneously on 3750 Kc., 7196 Kc., 14343 Kc., 52.4 Mc. and 144.138 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7010 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4 query service to VK4WI.

VK5WI.—Sundays, 1000 hours SAST, on 7196 Kc. Frequency checks are given by VK5DW on Friday evenings on the 7 and 14 Mc. bands.

VK6WI.—Saturdays 1400 hours, Sundays 0930 hours WAST, on 7196 Kc. No frequency checks available.

VK7WI.—Second and Fourth Sundays at 1000 hours E.S.T. on 7196 Kc. No frequency checks are available.

QUEENSLAND

Secretary.—W. L. Stevens, VK4TB, Box 6383, G.P.O., Brisbane

Meeting Night.—Last Friday in each month at the State Service Building, Elizabeth St., City.

Divisional Sub-Editor.—F. H. Shannon, VK4SN, Minden, via Rosewood.

SOUTH AUSTRALIA

Secretary.—E. A. Barbier, VK5MD, Box 1234K, G.P.O., Adelaide.

Meeting Night.—Second Tuesday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor.—W. W. Parsons, VK5PS, 483 Esplanade, Henley Beach.

WESTERN AUSTRALIA

Secretary.—W. E. Coxon, VK6AG, 7 Howard St., Perth.

Meeting Place.—Padbury House, Cnr. St. George's Ter. and King St., Perth.

Meeting Night.—Watch the Monthly Bulletin.

Divisional Sub-Editor.—D. Couch, VK6WT, Mary St., Waterman's Bay, Western Australia.

TASMANIA

Secretary.—R. D. O'May, VK7OM, Box 871B, G.P.O., Hobart.

Meeting Night.—First Wednesday of each month at the Photographic Society's Rooms, 163 Liverpool St., Hobart.

Divisional Sub-Editor.—Capt. E. J. Orvile, VK7EJ, Anglesea Barracks, Hobart.

Northern Correspondent: O. P. Wright, VK7LZ, 3 Knight St., Launceston.

FEDERAL

DX C.C. LISTING

With this issue, we have renumbered the members of the Club in each of their Sections, and have listed all present members with their scores. We are still awaiting the Zones confirmed totals from some members who should let the Awards Committee know at the earliest.

PHONE

	Zn.	Cts.		Zn.	Cts.
VK3JD (1)	38	121	VK6KW (4)	39	107
VK6RU (2)	37	113	VK8IG (5)		100
VK3BZ (3)	40	113			

C.W

	Zn.	Cts.		Zn.	Cts.
VK3ON (1)	40	136	VK4DA (7)	38	113
VK3BZ (2)	40	135	VK4HR (8)	38	113
VK3VW (4)	39	131	VK2QL (5)	40	112
VK3EK (3)	39	122	VK4RF (11)	34	107
VK4EL (9)	39	120	VK3KB (10)		104
VK2EO (3)	40	116	VK3UM (12)	36	100

[illegible]

	Zn.	Cts.		Zn.	Cts.
VK3BZ (4)	40	163	VK3OP (19)		108
VK2DI (2)	40	160	VK2YL (11)		105
VK3JE (13)	39	147	VK4DO (15)	38	105
VK3HG (3)	39	142	VK2VN (18)	39	104
VK6RU (8)	37	142	VK3HZ (17)	39	102
VK3KX (1)		136	VK2ACX (6)	40	100
VK3MO (5)	39	132	VK2AHA (9)	40	100
VK4HR (7)	38	131	VK2ADT (14)		100
VK6KW (13)	39	126	VK2AHM (20)		100
VK2NS (16)	39	123	VK4RO (21)		100
VK4EL (10)	38	120			

Endorsements in the form of a sticker for the Certificate are available for any of the above members submitting additional verifications from 20 countries.

COUNTRIES LIST

The following prefix blocks have been allotted as follows:—

KG6IA-KG6IZ Bonin and Volcano Is. (Iwo Jima).
KG6SA-KG6SZ Marianas Is. (Saipan).
KG6TA-KG6TZ Marianas Is. (Tinian).
KC6AA-KC6ZZ Caroline Islands.
For Trieste, add prefix AG2, MF2.

Add new countries—
Macquarie Island (20) VK1
Israel (20) 4X4

PHONE-C.W. ALLOCATIONS

As agreed to by the 18th and confirmed by the 19th (1949) Conventions, all Divisions agreed to publicise the following voluntary band sub-divisions on a "gentlemen's agreement" basis. They are:—

3500-3550 Kc. c.w. only, remainder phone & c.w.
7000-7020 " " "
14000-14100 " " "
21000-21100 " " "
28000-28100 " " "

It is intended to bring this sub-division to notice regularly and we enjoin all phone operators to observe this voluntary agreement. It is working reasonably well on 14 Mc., but other bands need some more attention in this regard. Although, by this agreement, c.w. may operate anywhere on the allotted bands, if the phone men stick to their end of this agreement, it will naturally follow that the c.w. operators will automatically keep their end of the band. Let us have voluntary restrictions, rather than enforced ones!

W.I.A. ACTIVITIES' CALENDAR

May 1—N.b.f.m. and a.s.s.c. emissions effective.
May 16—Convention Minutes circulated.
June 4-6—1949 Trans-Tasman Contest.
June 13—Ratification of Convention items required.
August 13-14—1949 Remembrance Day Contest.

A.S.S.C. TRANSMISSIONS

The P.M.G's. Department has requested that each Division set up a key station using the above type of emission, and it is now advised that the VK7 Divisional station will be VK7LE. His times of operation will be:—

VK7LE, 7140 Kc., Thursdays 2000-2100 hours E.A.S.T. and Sundays 0800-0900 hours E.A.S.T.

NEW SOUTH WALES

The annual meeting was well attended. The visitors included 6GM, 4ZU, 4DO, 3VA and 3HW. The President, Morrie Meyers 2VN, announced the result of the ballot for the new Council and declared the following elected: Brian Anderson 2AND, Vic Cole 2VL, Lee Cuffe 2AM, Bill Hicks 2ANH, Clive Hutchison 2YP, Naughton McNaughton 2ZH, and Fred Treharne 2BM.

A lecture under the caption of "Experimental Ionospheric Predictions" was given by Mr J. C. Reed 2JR, engineer of A.W.A. Joe spoke for two solid hours, but so great was the interest that none noticed the passage of time, and all got a shock when they found for how long they had listened with rapt attention. Joe made the reading of the Propagation Bulletins an open book to us all. Lantern slide diagrams and Joe's painstaking attention to detail ensured that the least informed of us followed his exposition with ease. All agreed that this was one of the most effective and enjoyable addresses we have ever heard. As usual Joe finished off his discourse with what he called a few "nuts." These comprised an exposition of the "Clapp" circuit and a v.f.o. of his own design that he called the "Reed Circuit." Full particulars will be given to country members via "Amateur Radio" in the near future.

At their first Council meeting, members elected Mr. H. F. Treharne 2BM as President and Chairman, and Mr. N. H. Hicks 2ANH and Mr. C. Hutchison 2YP as Vice-Chairman for 1949-50. The Council have appointed the following officers for the year: Secretary, Dick Dowe 2RP; Asst. Secretary, Stan Owens 2BX; Treasurer, Bill Hicks 2ANH, Asst. Treasurer Wal Easterling 2BJ, QSL Officer, Jim Corbin 2YC, Bulletin Despatch Officer, Pete Vesper 2PV, V.H.F. Officer, Vaughan Wilson 2VW; Technical Officer, Lee Cuffe 2AM, Disposals Officer, Clive Hutchison 2YP; Traffic Officer, Roy Egan 2ARE; Librarian, Dick Dowe 2RP; Buildings Officer, Don Knock 2NO; Liaison Officer with P.M.G., Fred Treharne 2BM; Liaison Officer with Country Members, Bill Moore 2HZ. Convener of Constitution Committee, Brian Anderson 2AND.

The Council instructed Bill Hicks, Clive Hutchison, Naughton McNaughton, and Dick Dowe to visit Newcastle, represent the Council and make final arrangements for the establishment of a Branch of the N.S.W. Division of the Wireless Institute of Australia in the coalfields district.

NORTH SHORE ZONE

A bit of a nip in the air now, and a corresponding increase in DX potentialities. 2NI has his new 2-element beam in operation now and a nice mechanical job it is, too. He's having some difficulty with feed troubles, though, inductive coupling being the snag. 2AND reckons he's joined the TX C.C., having now made 103 drawings of p.p. 807 rigs. 2TL still working on the threatened beam, but it sure

takes time! 2RP combining house-building with his duties as Divisional Secretary, which doesn't spare him much time for QSOs.

2ES is still doing business with his rotary dipole—in fact only conservative diehards like 2AMB and myself seem to believe that you can still work 'em on the old zepp. If a round-up were taken of the boys who have worked well over the hundred countries post-war with zepps, single wires and so forth, the total would be surprising. Not that I sneer at beams. But I think they can be made too much of a fetish. Good operating technique and procedure will still pull in the rare ones from under the noses of the kilowatt and 3 element beam boys. You can hear it being done any night of the week.

SOUTH ZONE

The main topic of the moment in this district seems to be the v.h.f 144 Mc. contest which has just commenced. Three stations, 2ANB, 2WJ, and 2VW are competing and results should be interesting. The Kingsford Radio Club will soon have their new transmitter on the air, operating under the call of VK2AKC, and will be looking for contacts on 144 and 7 Mc. bands.

2ABU now has his 20 metre beam working and is putting out a very solid signal. 2ANB very active on 144 Mc. Has an SCR522 hotted up with a corner reflector horizontally polarised beam. We have been trying to coax 2ABC down to 2 metres but Fred says 6 and 10 will do him. 2WJ also trying to repeat his last performance and win the contest. 2ABB has nearly finished his new shack and is heard occasionally on all bands from 2 metres up. 2UV back on 20 with a solid signal, after replacing his main h.t. power supply. 2CP rarely heard these days. 2VW also active in the contest and planning new 80 ft. lattice tower to hang the beams on. Our congratulations to Keith Renwick who recently passed his A.O.C.P.. Unfortunately there is a minimum age limit and Keith will have to wait a while before receiving his call.

WESTERN SUBURBS

Lately 2ALA has been cleaning up the DX on 20, otherwise on 7 Mc. phone. 2AMJ, who hails from Berala usually has a crowd of fellers cluttering up her frequency. Joyce hopes to be on 20 soon with beam antenna. 2OQ does a fine job on 20. 2MA is very pleased with his high C Hartley v.f.o. 2ALO is playing with beams. 2JT is battling with a couple of "A" frames for a new antenna. 2FZ has not much time for radio except at the week-ends. 2AN is a new arrival in the Enfield area and works mainly on 28 Mc. 2ABZ puts out a nice signal on 144 Mc. into the heart of the city. Sorry I couldn't answer your CQ on m.c.w. Bill; maybe soon. 2AHU just isn't happy about his new modulator. 2OX, the 'old salt," has a super on 144 Mc.

Future meetings of the Experimental Radio Society of N.S.W. will start at 8 p.m. on Thursdays, 9th June, 23rd June, and 7th July. If you are handy, go along to the Greenwood Hall, Liverpool Rd., Enfield, on those dates. A series of lectures by A.W.A. engineers is planned and they will cover phase modulation, transformer design, and n.b.f.m.

Gladesville District Experimental Radio Club boasts a small but enthusiastic membership. Publicity officer Ken Whitmore tells me that the Club has a series of lectures running with only an occasional night devoted to dull business. These lads are keen exponents of v.h.f. technique and field days are the rule rather than the exception. Last field day was a d.f. test on 144 Mc. but plenty of variety is introduced into the days to escape any thoughts of monotony. VK2ADY had eleven stations in the field with 2HL in control as master station. Launch picnics are another innovation. Meetings are held each Thursday in a hall provided by Mrs. Brown, mother of Mac Brown, an enthusiastic member. Three out of four nights are devoted to lectures of picture nights. VK2ADY goes on 40 metres each Tuesday evening and code practice as well as constructional work is undertaken. Further information may be obtained from the Publicity Officer Ken Whitmore, 5 Elaton Ave., West Ryde.

DX NOTES BY VK2QL

As was anticipated by working from the Ionospheric Bulletin, DX conditions for April were not good, and there appears to be not much hope for May either, so there is not much to report as far as plenty of the rarer DX is concerned. Just the same, some very nice DX was heard, unfortunately not worked in most cases, at this neck of the woods.

The following good ones were heard. VP8 and MT2A until 9 a.m., FY8B, CR10FU, YS1RA, EK1DO, EA8MC, TA3GVU, OQ5RA (4 p.m. EST), UM8KAA, UJ8KAA, UL7KAA, UN1AB, UI8KAA, VK1VU, VK1RA. A fair percentage of the above were heard round 3 to 4 p.m. EST which seems the best time at present. OX3MG says he will be leaving Greenland in August, and another OX station also leaving I believe. Greenland has been a lot easier to raise in recent weeks, two contacts a night being possible.

Some of the gang have come to my assistance with some "gen." Many thanks to 2NR, 2OA, 2NS, 2ADE, 2AHM and the old stalwart, 2ACX. W4FOF is looking for contacts with any VKs, who are interested in bee-keeping. He puts a good signal in here so should be an easy contact on 14 Mc. for anybody interested.

A few QTHs may be of interest. ZS9D—Box 14, Francistown, Bechuanaland; PK3JT—J. H. Briet, Wonekiti Blvde No. 6, Soerabaia, YS1RA—c/o. American Embassy, San Salvador, EK1DO—B.P.O. 29, Tangier; YU7RO—Wait for his QSL; TA3GVU—A.R.R.L. QSL Bureau.

2NS sends a nice list, pickings of which are EK1DP, YS1ES, CP4DH, AR8BM, ET2AD, HI6EC. 2AHM, the low power merchant, has worked, with an average of 8.8 watts, 145 countries. 102 on 28 Mc. Claims, justly I think, he is the lowest powered station to make DX C.C. With the advent of a genemotor, has gone high power to the tune of 20 watts. 2ACX advises his W.A.Z. application has been OK'd. Congrats Arthur.

Listings for the month are:—3NS 159 and 39, 2AHM 145, 2ADE 196 and 38, 2YC 108 and 38 (11 new countries in 10 days), 9NR 76, 4DA 154, 2DI 197 and 40, 2QL 153 and 40, 2ACX 186 and 40.

The guy who led me astray by introducing me to Ham Radio, 2OW ex-2FZ, threatens to migrate from 7 Mc. to the DX bands by building a new receiver.

COALFIELDS AND LAKES

2AIO trying a new final, at the moment has 80 countries post-war. 2AEZ wrestling with a Bendix frequency meter, DX quiet and Em still looking for zones 35 and 40 for W.A.Z. 2EU only active on 50 Mc. 2AMU after the rare ones on 28 Mc., GD3AGC the latest. 2KR, hear you often on 40, let us have some notes. 2OC seldom heard these days. 2KF seems to have the tranny trouble beat now and has good phone, plenty of modulation. 2KZ on 10 and 6, has given Delaware away, needed it for a 10 phone W.A.S., has a little trouble with phone at present. 2TY heard on 6 and 10. 2JZ DX chasing on 10, also 2AMU been holidaying at 2XOās. Not much news of 2VU. 6 metres is his hideout. 2PZ working on rx. 2MK doing some rebuilding and should be on soon. 2ADT has "Clapp" going, new 6 mx. rig and bagging some nice ones on 10 and 20, may re-arrange gear if urge remains! 2YL half re-built, maybe active in a month's time. Any notes from zone members would be appreciated at 2YL, 21 Comfort Ave., Cessnock.

WESTERN ZONE

The main topic of the month is n.b.f.m., the best station heard so far was 2ALX with his AT20 phase modulating the v.f.o., and running lazy 100 watts to the final. 2JW playing about with it, but his v.f.o. is a bit uneasy and jumps around like a cat on hot bricks. Then of course the field day at Urunga. Visitors from this zone being 2WH and 2ACU, and Norm, official photographer. All report the function a great success. 2VZ has completely re-built his rig and is back after three months off. 2AMR heard occasionally on 40, reports good results with two elements, wide-spaced on 10, fed with 40 ohm co-ax. 2ACT using a Type 3 Mark II and series cathode modulation. 2BT mad with the c.w., often heard on the bug with all weights off.

2EI pops on 40 occasionally. 2DK using p.p. 807s, all operated from 6 volt batteries. 2LY is very active on 10 with a half wave doublet, talks of a 4 over 4 beam. 2HZ put up three stringy bark poles, ably assisted by 2LY. 2FH with his mains voltage often down to 180 volts is in trouble, hopes to get to Sydney soon, will only have black-outs down there. Speaking of n.b.f.m.—was recently entertaining a friend in the shack and he remarked "I didn't think language was allowed on the air." I said I hadn't noticed any swearing. He replied, "didn't VK2—— say n.b.f.m." I explained what f.m. was. His reply, "If that is "b" frequency modulation, no wonder the ABC is reluctant to use it!"

A.O.C.P. CLASS

The Victorian Division A.O.C.P. Class will commence on Thursday, 14th July, 1949. Lectures are held on Monday and Thursday evenings from 8 to 10 p.m. Persons desirous of being enrolled should communicate with Secretary W.I.A., Victorian Division, 191 Queen St., Melbourne (Phone FJ 6997 from 9 a.m. to 5 p.m.), or the Class Manager on either of the above evenings.

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Here and Inside Front Cover

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English Hi-Frequency Receiver, type R3084A, band tuning coverage approx. 170 Mc. Valve line up—two RL7s, one RL16, six VR91s. Aerial switching motor, valves, etc., two at £5 each.

Osram Neon Lamps. Ideal for VR Tubes. 2/6 each.

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SOUTH COAST AND TABLELANDS

The zone welcomes 2AMN who is operating from O'Connor, Canberra. Ray has two rigs, for 40—6V6, 813, 50 watts, 6L6s in ABI; and for 20—6V6, 6V6, pair of 807s. Turner mike and home built rx with Aegis coil kit, completes the set up. 2AOX, Woonoona, active on 40 with 6F6 e.c.o., 6F6, and 807 fina., modulated by 807s in ABI; rx. 9 tubes. A new addition at 2AIK is an auto-tranny, previously used in a b.c. station, it keeps the West Wyalong mains under control. 2AFV suffered an injury when a tree fell on him, hope to hear you soon and that you are on deck again. 2AKE has moved to the new house and is active on 40 and 80, works 2ALS on c.w. Paid a visit to 2OY at Goulburn and had a look see at some very well-constructed equipment. New rx. is a double conversion job, and the v.f.o. and tx. are beautifully made. 2AJP called in for a few minutes, he is "sparks" at HQ of Southern Electricity at Goulburn.

2AIZ active using suppressor modulation, radio is also his bread and butter, works at b.c. station 2GN. 2GU active on 40 and 6 using remote control of tx's., has no trouble working 2TA Young and skeds 2JU Sydney on 6. 2JQ stopped in for a few minutes when passing through to Tumut, looks well and sports a new car. Took away a circuit so perhaps a change to n.b.f.m. will be on one day. 2PT off duty while undergoing operation for tonsilitis. At moment he and family are holidaying in Sydney. 2VS back at Canberra relieving at 2CA, using 6V6 c.o., RK39 cathode mod., rx. No. 11. 2ALS on 40 and 80 mostly on c.w., n.b.f.m. appeals and should cure b.c.i. to some extent. 2RM at Military College active with solid signal, often visits Newcastle when time permits. No news of Wollongong, except 2MT rocking into Europe most mornings on 20. Had pleasure of meeting 2ALS, who was busy neutralising his 809, he had good reports of the North Coast Convention. Visited 2WF of Manly and although "Why Fox" was on duty navigating the Lachlan or some other expanse of water, his 2nd op. (the XYL) ably explained each piece of gear. 2JW, 2ALX and 2AHZ heard here on n.b.f.m. on 40, all were well received and I understand they were all pleased with reduction in b.c.i.

VICTORIA

At the May general meeting, before the commencement of the main business of the evening, three short films of interest to Amateurs were shown. The first film, entitled "The Creation and Behaviour of Radio Waves," illustrated diagrammatically the production and propagation of radio waves. The simple magnetic and dielectric fields set up around a d.c. circuit were first shown. The development and radiation of electromagnetic waves followed when the circuit was excited from a high frequency source. The film then showed the propagation of waves in space, distinguishing between ground wave propagation and propagation by reflection from the ionosphere.

The second film was titled "Radio Antenna Fundamentals." It showed diagrammatically, by means of animated pictures, the reflection of travelling waves on antennae and transmission lines, and the production of standing waves followed. Methods of feeding antennae with different types of transmission lines were illustrated and the effect of series inductance or capacitance on the electrical length of the antenna shown. The film showed examples of fixed and trailing aircraft antennae.

The third film dealt with "Atomic Energy." Starting with a simple soap bubble, the constituent molecules in the thin soap film was pictured. It was then shown that the molecules consisted of atoms, and that the atoms were made up of electrons with a nucleus formed of protons and neutrons. It was then shown that there was a relationship between the temperature and mass of a body. We saw how a sphere of iron becomes slightly lighter as it is heated. Thus it could be appreciated that changes in the mass of the atomic nuclei were accompanied by the radiation of energy. Atomic energy could be produced by nuclear synthesis, whereby the nuclei of a light element were joined together to produce a heavier one, or by the better known process of nuclear fission whereby the nucleus of a heavy element was split up to produce nuclei of a lighter element. It was shown how nuclear fission could set up a chain reaction which is used in the atomic bomb.

SCREENING OF FILMS

The Victorian Division has arranged for the screening of films of general interest at the Radio School on the following nights: Friday, 10th June; Friday, 8th July; Friday, 7th September.

Members and friends are invited to attend, and further information may be obtained by ringing the Secretary at FJ 6997.

EASTERN ZONE PORTABLE CONTEST

The zone's portable contest, held the last week-end in April, proved an unqualified success, and we wish to thank the stations outside the zone for taking an interested and active part in the contest. We believe that one station, 3KS, came on phone for the first time when she gave the boys points to add to their score. 3KS and 3XB are ex-members of the zone. The results of the contest have not been announced at time of writing.

The stations operating under portable conditions were VK3s QZ, WE, ALA, SS, RH, TH, ALS, LV, DI, and VL. The fixed zone stations were VK3s CI, PR, ASP, AHK, ABO, and UO. The weather was ideal over the week end for the portable stations, and only one group had any complaints. 3SS and junior op David (and ardent s.w.l.) and 3ALA went camping on the Dargo Plains for the contest, taking a 108, a Type 3 and a Type A. The latter arrived with a fault in the receiver section, which 3SS could not fix, so 3ALA operated the Type 3 during the contest. Saturday was a sunny, windless day, so Keith did not fix the tent very securely. In the wee small hours he was awakened by the wind and had to fumble around tying the tent to the stretchers which supported the slumbering forms of David and Ted, who slept soundly all night, even though the tent was rocking the stretchers! However, apart from sundry tingles from the mike, all went well until they were ready to return home, when Keith's utility truck would not go. Someone had the brainy idea of pouring petrol from a bottle into the carby, but the petrol exploded, setting fire to 3ALA, to the truck, and to the surrounding grass. Ted put himself out, whilst Keith and David attended to the truck, leaving the grass and the petrol bottle (yes, it had contained lollywater) to burn themselves out.

Still the truck would not start, and when all hope of getting home that night had almost vanvanished, the only truck in the district appeared, and towed them back to civilisation, which proved a nightmare trip round hundreds of hairpin bends in a cloud of dust raised by the 3-tonner, and in the failing light from the headlamps. However, they reached home safely, which was the main thing.

3LV has been in his last hook-up as a member of the zone, as he leaves for the suburbs shortly. We wish you luck, Len, and don't forget that you are an honorary member of the zone. 3PR has had more poles broken by livestock rubbing against guys, and plans to put up new poles where the cattle can't go. 3DI is now operating on 20 mx. and has contacted 3VL on that band. Jim is studying antenna handbooks for a good one for 20! 3VL/US are housebuilding, so Ham Radio is taking a back seat. 3WE is operating from indoors in the hook-ups now that there's snow on them thar hills. What's the lowest temperature so far this

First Convention of North Coast and Tablelands Zone (N.S.W. Division), Urunga, 24th and 25th April, 1949

Great trees from little acorns grow . . . and from a chance remark it looks as though an Annual Convention in this Zone has originated. 2PA, 2ASF and 2SH operated from Point Plumer during the last N.F.D., but Crieff during a QSO suggested that next time Urunga would make a better location. To that chance invitation to the original three were quickly added the Hams from Coff's Harbour and then Lismore, then Grafton, till, finally they were coming from Forbes 2WH, Coonamble 2ACU, Tenterfield 2WT, Mungindi 2AWP, Byron Bay 2AGM, and Newcastle and Sydney. So with country interest awakened, was born the first Convention of the North Coast and Tablelands Zone.

Too much credit cannot be given to the organisers of the Convention: 2XO, 2PA, and 2ASF. Crieff studied the matter from every angle and the arrangements meant almost continuous contacts on 3.5 and 7 Mc. with his other two helpers. In fact it soon became almost impossible to tune over the bands without eavesdropping on the latest developments. Urunga being a very up-to-date and lively community, quickly offered every help through its Progress Association and business people, and everything possible was done by them to make the visitors' stay memorable, as well as enjoyable.

The N.S.W. Divisional Council took advantage of 2YC's offer to represent them and besides donating prizes, flew one of their most popular lecturers, Mr. Joe Reed 2JR, up to Coff's Harbour where 2ADN provided transport to Urunga. Mr. Reed, besides repeating his W.I.A. lecture on Ionospheric Predictions, gave advice to all comers. In fact wherever one seemed to look on Sunday or Monday, there was 2JR, pencil and paper and rapt pupils.

Saturday was arrival day, either at the 2XO boatshed, beautifully situated near the bridge over the Bellingen River, or if one overshot that and arrived at the hotel, one's arrival was quickly relayed via 2AJT's portable at the hotel to portable 2PA at the boatshed. 2WH and 2ACU gave a ball-to-ball description via portable radio of their trip from Coonamble and are thinking of Lorna for the next time.

Sunday morning found everybody gathered at 2XO's "Do-Me"—all present wearing the Convention shield giving his call sign, Christian name, and town, and some very old "over the air friends" of many years standing discovered what the men behind the voice and the key looked like. In between times the capacity of the "lazy-nine" was examined, and serious Hams belted Ted Hainey's bunch of bananas and then put their decisions in the "jam tin." The organisers had an official photographer, Mr. Norm Moody, who took gatherings by daylight or flashlight—large groups or small—and any old "over the air friends" had a ready camera to record the fact that it was at the very first Urunga Convention they met. Of course, the "Hams were at it too—2CI with his Graflex, 2JR with his 35 mm., 2ADN, Ted Hainey's and others all have some photographic records."

Serious competitions interspersed much operation of 2PA portable. Morse men and phone men copied c.w. through much and varied QRM, while phone men tried to pick the voices of well known "phone men." But even Crieff failed to recognise his own voice repeated twice in rotation. These pretty clever recordings were Graham 2ARE's help to his country friends.

Sunday afternoon was devoted to a launch picnic, and fishing. The former was particularly for the ladies and the latter for the men. Well, even the best run affairs fail somewhere—ask Crieff about the fishing!

The launches were donated by the Urunga Private Launch Owners and it was the owners themselves who were most loath to leave off for the afternoon tea—fishing seemed as bad a disease as Ham Radio.

Proceedings on Sunday night were held at the Urunga School of Arts and opened by a welcome on behalf of Urunga by the President of the Progress Association. The townspeople, as a small gesture of the Hams' appreciation, had been invited to attend this gathering and arrived in force. Crieff 2XO, Pete 2PA and Col 2ASF responded on behalf of the Organisation Committee. Colour films by the courtesy of Messrs. Ben Johnson, Ted Hainey and Jack Gerrard, and slides by 2JR made a night pass only too quickly.

In the interval, 2YC, on behalf of the W.I.A., thanked all for their interest and enthusiasm, and spread some light on the Ham and his organisation, the Wireless Institute of Australia, the oldest body of its kind in the world. Then he presented prizes, which were concluded by two specials, "The Yabbie Catchers' Award" to Cec Hardman, which caused Col Fletcher much mirth, but not half as much as Cec felt when Col followed him to receive "The Ear Basher's Award."

Then came 2JR's lecture, just over two hours, but for lectures by Joe of 2JR, two hours is gone in no time, with the audience disappointed that the end is so near the beginning.

Monday came; a time for departure, but as each parting guest left the "Do-Me" Crieff, who once had 48½ lbs. of very nice bananas for his weight guessing, sadly watched it get lighter and lighter, and so ended a great week-end, a credit to its organisers, and to the Ham spirit of country Hams to whom hundreds of miles meant nothing, and as each one left, the parting word was the same—"be seeing you again at the W.I.A's. North Coast and Tableland Convention at Urunga next year."

Among those present were: VK2s PA, XO, ASF, SH, ZS, OI, AJB, DS, WQ, ALS, ARY, LH, KR, NX, AGD, KS, NY, AGM, JR, WT, WH, ACU, TB, EA, AWP, DX, SR, AJT, ARJ, JK, YC, ADN, Messrs. Norm Moody, Norm Hart, C. Gorton, E. Hainey.

Donations were received from the following:—Bailey's Cordial Factory, soft drinks, McWilliam's Wines, case wines; Rod Pike 2ACU, £1; Leu Turner 2AJB, motor generator, Ted Hainey, bunch bananas, Martin de Laurnay, pair 807s, Dominion Factors, £1/1/ open order; Prices Radio, £1/1/ open order; Wireless Institute of Australia, valves and maps.

Results of the competitions.—Morse recording 1st, 2JR, motor generator; 2nd, 2ZS, pair 807s, 3rd, 2AGM 807. Voices 1st, 2AJB, pair 807s; 2nd, 2KR, open order—Prices; 3rd, 2AGM, great circle map. Longest distance travelled 2WH, 521 miles, great circle map. Weight of bananas (49 lbs.): 2XO, 49½ lbs., prize—bunch of bananas. Biggest fish: Snow McAuley, 1.1.0 open order—Dominion Factors. Special Competition, guessing number on £5 note: 2NX, 807. Special Presentations (made by Jim Corbin 2YC). Yabbie Catchers' Award, 2KR (now entitled to do treading in North Coast Zone), Ear Basher's Award, 2ASF, 17¼ minutes on 17/2/49, 7 Mc. Portable equipment in operation: 2PA, 3AJT and 2ACU on 7 Mc., and 2ES on 144 Mc.

season, Bill? 3CI has decided his quad works better on the ground than it does up in the air. 3BB has brought honours to the zone by winning the Frequency Measuring Contest. Congrats, Bert. 3QZ is planning what antennae he will put up when he moves into his new home, which is nearly finished.

The zone's weekly hook-ups are held at 2000 hours, Sunday nights, on the frequency of 3650 Kc. We urge those members who have not yet participated, to call themselves in, and join in the ragchews. Those members of the zone who cannot work 80, are invited to inform the Notes Correspondent (Mrs. G. Churchward VK3US, Red Hill), of their activities, for inclusion in the notes.

SOUTH WESTERN ZONE

After listening over the bands during the past month one hears new signals and two old timers in Ham Radio, 3JA and 3HG, can be heard on sked on 80 with fine signals, and another old timer who signs 3PS came on 40 the other day. Have heard 3BE working VK3 quite a lot, also 3MH was on 40 and 3GR has gone to 20, so I hear, and getting out quite well. 3II was working 3BE a few days back and I overheard Bill say that Leigh's phone smelt and he could not hear him, well 3II was S9 here and good phone. 3AKR is putting up a new 8-wave vee beam and has it now down to a fine art. 3QC gave a lecture the other night on db's over 9, working DX when you have S-W's come back, and a short note on inverse feedback, this was given to 3AKR and your scribe over the air which was very welcome. Heard 3AQV on 20 and old 3YE still having trouble with no signal, much, on 40. Will come down soon Vern and help you out.

Looks as if 3BW has something in store with a new 40 ft. tower with beam for all bands; how will the 80 metre rotary go? 3APG and 3ABW had a spell at Anglesea with portable gear. 3AIG has started on new modulator unit and Fred has a surprise up his sleeve as 3AJF has a command rig on 80. My old friend 3AKE is a forgotten dream, as I have not heard his sweet charming voice for some time as he is now 100 per cent. DX, remember boys on 144 Mc., so what about it Ed. 3IO had the mike pulling funny faces the other night, with the result that Bob landed it at the other end of shack and got better output from it. Often hear 3ZU on 40 and 20 working locals and DX, with nice phone and c.w., but 3HF still pounds in here with extra good phone. Also heard that Harry had some fun erecting the 75 ft. mast, as he finally had to run a cable around the house to have a firm anchor. 3VA and 3HW are holidaying in VK2 and VK4, getting new ideas, etc. chaps? 3ASV has not been heard on for quite some time now, likewise 3AGD.

Geelong Amateur Radio Club.—Two more new members were welcomed by the members of the Geelong Amateur Radio Club. At this meeting one of the members, Mr. Brian Lloyd, gave a talk on "The Advantages and Disadvantages of the Straight Super Heterodyne Receivers and Double Conversion Super Receivers." The following meeting, Mr Peter Perkins lectured on "Distortion." Mr. Perkins continually used the blackboard to illustrate his lecture.

On Sunday, 1st May, the Club held a hidden transmitter hunt. As the gang set off to find the transmitter, the Club call sign, VK3ATL, was used. First to locate it was 3AKE and company, followed closely by 3BU. 3APG set off on his push bike to find it and finally made it. A picnic was then held at Torquay after which the transmitter was again hidden, this time it was located first by 3ALG, 3SY, and 3NG, who were together.

NORTH WESTERN ZONE

North Western Zone has received a severe setback. 3BM, the most active member of the Zone, and the one to whom Hams look when they are in difficulty, has intimated that he has taken on public duties that will severely limit his activities. He has resigned his appointments as the Zone's representative and magazine correspondent and his cheerful voice is no longer heard in the Zone hook-ups. No, he is not giving his gear away. He will have an occasional QSO, but for most of the time, Mallee dust will accumulate, and moths, silverfish and other wogs will find a home in his transmitter.

3CB and 3TL are still to be heard every Sunday morning, some of the others join in occasionally. 3YW (Central Western Zone) usually comes into the hook-up and offers advice—often useful. 3CE has a new diesel engine for his lighting plant. He intends to put in an alternator. He puts out very fine phone. 3TL has rebuilt his 4-stage transmitter—one stage at a time. He was having a lot of trouble with an 807 straight amplifier, till it was suggested to him that the 6L6 c.o. was driving it silly. He merely shifted a plug in the primary of the c.o. transformer, and the rig is running sweetly.

3ZK is still hoping to increase his activities. His trouble is line noise that blots out all but the strongest signals. 3HR is moderately active. 3AWK has not been heard recently. 3LU has rebuilt his transmitter, rack and panel, 6 feet high.

CENTRAL WESTERN ZONE

Easter time in Stawell is always busy, but when numerous Hams descended on your scribe, Easter Monday, 40 metre QRM at its worst really came to life. 3LT was, of course, the worst but he was ably supported by VK3s DP, AKW, LF, HL, and sundry others. 3EF and 3QN were noted later, George, by the way, has cleaned his shack up and fired up a TA12D for 3.5 Mc. 3LF is very happy with his AT5 power supply which is running off the 240 v. d.c. as a battery charger, not a bad 15/- worth at all. A newcomer to the zone is 3ANA, of Horsham. By this time he should be W.I.A. and we will be looking for him on the hook-up.

3HL is going to clean up the vee beams and use the windmill tower as a centre stick. 3AKP is putting out a nice phone signal with the crystal insert. 3EF came onto the hook-up with a phone transmitter only half an hour old, nice to hear you from the new QTH Bert, and doubtless the modulation will soon expand. 3DP has increased his power lately up to 45 watts c.w. now, and 25 watts phone, still off the same poor old generator Jim? 3EP was trying out a new modulator and had a nice parasitic, have to cut that out Ted. Zone hook-ups are a thorny problem, but we still keep on keeping on with the old faithfuls and a few new ones, so what about it chaps. Second Sunday in month—10 a.m. —control station is 3YW on approx. 7120 Kc.

QUEENSLAND

During April advice was received from W6JLY of San Antonio, Texas, via VK4ZB, that the former had heard on several Sunday mornings, between 9 a.m. and 11 a.m. E.A.S.T. a station on 50 Mc. band. Station was not identified and he reports that his beam was aimed at VK. It is significant that VK4WI operates on 50 Mc. every Sunday morning between the hours mentioned. We await further reports with great interest.

A feature of the Sunday morning "get together" on 7 Mc. is the discussion between country members, VK4WI, and some City members. We would like to see more of the City gang taking part as we feel sure that if the country and the city could meet more often in the discussion of W.I.A. matters, it would go a long way towards a better understanding.

A display of Ham gear in the hobbies' section of the Red Cross Exhibition during April, was a

huge success. We hope to have a detailed description ready for our next issue.

We believe 4HR is getting a new wall ready for the numerous certificates that have been coming his way lately. The most recent of which is a DX C.C. on 28 Mc. phone.

The total number of financial members in country zones at the end of April was 73 licenced Hams and 13 Associates.

ZONE NEWS

Townsville Zone (VK4GD).—This is a very live wire zone and is keeping up the good work of preparing candidates for the A.O.C.P.—on an average of two new candidates each examination. The Club has its own transmitter and hopes to be on the air very soon under the managership of 4EJ and 4XD. The lad we mentioned is our December notes still pushes the bike 25 miles into Townsville to attend the A.O.C.P. class. Congrats OM! and here's wishing you every success in that exam. Such enthusiasm deserves success.

A newcomer to the zone is 4EF from Barcaldine. 4RW uses three folded dipoles of 300 ohm ribbon ranged in the form of equilateral triangle, each side fed separately. 4GD is building a beam for 28 Mc. and reports great activity on that band lately. Joke of the month concerns a certain member of this zone who painted his car. For some reason the second coat of paint shrank. The under coat appeared between layers of the top coat, giving the whole a "Pied Piper" effect. The disgusted owner soon had his spirits restored when neighbours came round to ask Bob for instructions on how they could get a similar "crackle" finish on their own cars.

Financial members in this zone are: 4MG, 4GD, 4EF, 4BW, 4GZ, 4RW, 4LK, 4PC, and Associate Dr. K. D. Gades, of Normanton.

Maryborough Zone (VK4GH).—A new Club has been formed in this zone with nine members, four of whom are Hams. It is hoped to gain many more members and the Club has collected a quantity of gear, which it is prepared to loan to beginners to help them to get started. Meetings are held each week in one or other of the members' shacks.

Financial members in the zone are 4GH, 4BG, 4BY, and 4AI.

4BG has a 20 metre beam mounted on the top of a 35 ft. telephone pole, and doing alright with the Europeans. 4GH hunting up gate switches for a new closed-in rig. 4AI working DX on 14 Mc., the latest being OK2, VK1ADS, and a VK4 operating portable VR1 in the Gilbert Islands.

Mackay Zone (VK4KW).—4FH now uses fixed beam on 14 Mc. and a W6JK on 28 Mc. John has W.A.C. and all but W.V.E., W.A.S., and DX C.C. all on 14 Mc.

Financial members in the zone are 4KW, 4MU, 4ZP, 4MA, 4OW, 4AM, 4FH, 4KR, 4BQ, and one Associate, R. A. Perry.

Gympie Zone (VK4HZ).—4HZ has at last dropped the 50 ft. a side for the conventional two half waves in phase, and seems to be doing as well, if not better. 4HD now a stranger to the 7 Mc. band and is, we understand, building a new modulator and working DX on 28 Mc. 4RA is working VE and W stations, which he hears on the old fashioned receiver using detector and two amplifier stages. 4XR has gone all South American and according to the grape vine is learning Spanish so that he can talk to the Senoritas.

Financial members in the zone are 4HZ, 4HD, 4LN, 4XR, and Associate C. M. Carter.

Recently when a search party was sent out to look for two children who were lost in the scrub near Gympie, 4XR and 4HZ maintained continuous wireless contact between Gympie and the search party's base. 4HZ took an FS6 with the searchers, whilst 4XR operated the home station in Gympie. Due to the excellent work of these two Hams, food parties were organised and all medical attention ready for the children when they were found.

Bundaberg Zone (VK4BJ).—4PG is now using a grounded grid amplifier. 4HE playing around with 7 Mc. 4AO spent 14 days holidaying with the Bundaberg gang. 4BJ working on 80, 40 and enjoying lunch time rag chews with the VK2 gang on 20. Most of the boys in this zone have been very active on 28 Mc.

Financial members are 4BJ, 4PG, 4XJ, 4UK, 4CW, 4AD, 4HE, 4PC, and Associates M. Tomkins, C. G. Ingram, and J. Canning, of Monto.

Ipswich Zone.—Very little from this zone as since the new boundaries have been formed no Manager has been appointed. Old "let's see you up on 80" George has been getting amongst the DX on 14 Mc. and on 3.5 Mc.—well, listen and see!

Financial members are 4AB, 4ER, 4MW, 4WS, 4EA, 4CH, 4KO, 4BG, 4GG, 4LD, 4LT, 4SN, and Associates M. J. Vincent, R. G. Edmonson, W. G. Vogel, A. McMillan, R. J. Wilson.

Downs Zone.—This is a new zone and as yet no zone manager has been appointed. Newcomer to the zone is 4XP. 4RF has 120 countries confirmed. 4TY 128 countries, of which 92 are confirmed.

This zone has the largest number of financial members: 4EF, 4CU, 4OK, 4KK, 4XN, 4DA, 4UX, 4BJ, 4AF, 4KZ, 4XP, 4EG, 4CG, 4ST, 4SG, 4TY.

Other financial members are 4BQ, 4ZB, 4EC, 4CL, 4ZL, and 4DO in the Central Zone, and 4FM, 4DC, 4KL, 4HK, 4AX, and Associates A. L. Porter and F. K. Ericsson in the Tableland Zone. In New Guinea we have two members, VK9KO and VK9BL.

SOUTH AUSTRALIA

The May monthly general meeting was held to a capacity house of 120 members and visitors, and the guest speaker was Mr. Clem Tillbrook (5GL). The subject he chose was "antenna construction" and it was particularly well received by all present. Purely practical throughout, and illustrated on the blackboard, together with a few examples of craftmanship passed around among the assembly (they all came back too), this type of lecture suited the taste of the majority of the audience, and Jim ("Aerial") Sullivan's vote of thanks was received with a solid round of acclamation. Moving among the gang at "smoke-oh," the favourable reaction to the lecture was particularly noticeable. Its success lay, I think, in the fact that Clem did not give us a handful of formulae and mathematical equations and then tell us to hope for the best, but showed us just what he had done in practice, and the results he had achieved. Some of the technical "upper crust" might have flinched a little when he spoke about giving the iron mast "a belt with an axe," but that was the language the ordinary Amateur understood. Good work Clem. Among the visitors present were 5BC, 3RD, G3CXQ, 5KL, 5UX (a fellow journalist), 5RC, and Messrs. E. Murray, G. Read, B. Mildren, and J. Gates. To these gentlemen we say welcome, and come again next time you are in town.

It was moved by 5YF and seconded by my sparring partner 5JD, that a copy of the theoretical paper of the last A.O.C.P. exam be submitted to a member of the Technical Committee and the theoretical instructor (5UL) with a view to reporting back to the meeting as to whether or not the paper was considered to be of too high a standard or not. It was good of these two gentlemen to do this, as without their help in bringing it before the meeting, it would have been hard for me to pass comment in these notes without putting myself "in the blue" with those up above. Whether the standard of the said examination paper was high or low, is not the real case in point, what really is the point, is that what was once regarded as a means of the P.M.G. checking the suitability of a candidate to be entrusted with a licence to further his practical experiments, appears to be slowly changing into a means of checking a candidate as to whether he possesses sufficient theoretical knowledge to instal and operate a completed Amateur station, or in other words, to be able to start off where the average Amateur usually finishes. Anyway, the matter has been raised as promised and is now in more competent hands than mine, but I could not help noticing the look of smug disinterest on the faces of several Hams who just managed to scrape a pass in their own particular A.O.C.P. exam in recent years. It is easy to suggest raising the standard of an examination when one is on the other side of the fence, but don't forget, "I knew you when!!"

It was good to see 5BC at the meeting. Being at Renmark he does not see much of the boys these days, except on annual holidays. He is giving the v.h.f. a go these days, assisted by his partner in crime 5SL, who is with him at the second best broadcasting station in VK5. (You don't know who that is? Remind me to tell you some day.)

"Deadeye Dick," I'm sorry, I mean 5TL apparently wields a wicked .303 rifle, if being top scorer for the Postal Institute Rifle Club means anything. His name in all the local papers, and over the air too. The "Postie" always gets his man. Heard that 5LG gave 5XO and 5YQ a hand to pull down their beams the other day. A labour of love Leith? 5PN was seen producing sine waves from his motor bus the other day, or were you just trying to find a place to park Les? Who was the egg (addled) who hetrodyned 5WI on a recent Sunday and then said "It's nearly W.I.A. time, so must QRT," and then kept going for nearly all the time the broadcast from the W.I.A. was on in VK5?

I could be wrong, but I thought I detected a slight note of disappointment in the voices of our two delegates upon their return from the conference in VK3. The subject of the magazine again came up for discussion at the general meeting of this Division and after some very illuminating information had been given by our delegates, it was decided that we, in VK5, could stand another increase of a penny, but after that, nothing doing. Personally, I can't see where all this continued discussion gets us. The magazine is a necessity, that's admitted, but we can't afford any more increases in price or we go broke. It's up to the Magazine Committee to trim it down to a payable proposition, or go out of business. That collosal debit in the VK3 balance sheet of 126 pounds against the Magazine still sticks in my tonsils.

Sorry to hear that 5DG has resigned from the W.I.A., no reasons given, what about the social club Dave? Humours around Adelaide seem to indicate that "Pecks bad boy" Strafford (5JS) is going to rejoin the W.I.A. again. Nothing definite to hand, but I hope it is true Jack. 2RD was a welcome visitor to the leading broadcast station in VK5 recently. Met all the gang and he seems to be a good sport, although he did pass some decidedly uncomplimentary remarks regarding my fallen stomach. 5WM is again taking the rest cure at Renmark (the second best broadcast station in VK5) and understand that all the local "Femmes" think that his party suit is a gorgeous piece of hessian; you beauti!

Noticed 5UL armed with red meat, fishing rod, etc., making toward the "Pat" the other day, and when I recovered from my astonishment he was too far away to question. How are they biting John? Can you predict them as easy as the elusive DX? My spies tell me that 5VM and 5JY work together at the local picture show and that their changeovers from machine to machine have to be seen to be appreciated. You can't trick me fellows, I served my time as a projectionist, I know where to look for the dots. Take a tip from me, broadcasting is a much easier business than the cinema. Joe McAllister tells me that he met 5KL, who is down from Darwin on a three months' holiday, and hopes to be here for good. I will probably meet him at the meeting, although it makes me feel old when I think how long ago it is since I last saw him. I am looking forward to meeting such a celebrity again. How do you like that Clarrie?

Congratulations go out to 5TR upon his appointment to a real top flight job with the Federal Government in Works and Housing. You will soon be able to make a good cup of tea now Ralph, look at the practice you will get. All jokes aside, I can remember Ralph when he was only a messenger boy in a chemist shop at Henley Beach, and he has climbed to the top, armed with an unquenchable faith in his own ability, and an eager desire to try anything once. There's no doubt it has paid dividends.

5CB is a bit sour, he dropped a fluorescent lamp on one of his HK24s and the top caved in. Amazing, although this dropping things on top of his tubes seems to be coming a habit with Charlie, as quite a number of tubes seem to have fresh air where the pip should be. 5LG was heard on "forty" the other day vainly calling CQ, but he remained a lonely little petunia and finally departed with his two and a half watts to regions where his talents would be better appreciated. You have not got what it takes Leith, try some French CQs.

The new rig of 5FD is nearly completed, the final and modulator are OK, so it wont be long now John. 5KU, "Erg" to you, has been on 80 metre c.w. when the nights are favorable, is using a half wave 80 metre antenna. 5JA has finished re-designing his p.p. 807 final, has made it of conventional lines instead of a supposedly superior circuit!! Has also made a "Clapp" v.f.o.. 5MS had the misfortune to have his xtal mike pack up on him. He is also building a 20 metre beam. Sorry I faded out on you Stewart on 20 the other day, but when I crossed back to you, you were gone too. Did you eventually wake up who I was?

5CH is still a very busy man but has managed to complete the chassis of his new rig. Say Claude, have been copying you very consistently on 20 lately, I sat on you the other Sunday morning while you were QSO with a VK2 and you were coming in like a local. Will be looking for you again. 5TW is also a very busy man 'tis said, has been seen with kalsomine in his hair so that is self-explanatory; keep it up Tom. 5CJ has completed his new receiver, but still has quite a lot to do in the way of calibrating, etc. Colin would like to know an easy way to remove paint from his lily-white hands, so he also can be classed as busy. By the way Col, the signals from you chaps on 20 have been coming in FB on Saturday and Sundays, so we might have that QSO yet.

To close the notes for this month I release a hot piece of news, to wit, I believe that a very solid sense of dissatisfaction is permeating the ranks of the Associate Members of VK5, and the principle bone of contention seems to be the lack of voting facilities granted to them. My spies report to me that their representative is to be asked to submit a signed list of their grouches to Council in an endeavour to lift the status of the poor Associate Member. Well fellows that is all to the good, because unless Council is made aware of any grouches it can't be expected to remedy them, so go to it, and if I can be of any help don't hesitate to dig me up. However, for the love of mike make sure that you have a genuine grouch, and are not being used up by somebody for their own purposes. Also, don't forget that no matter what the rules may say about voting, there is no rule to prevent any one of you getting up on the floor of the meeting and discussing your grievances for as long as you like. Don't let the full member frighten you, as I said earlier in these notes, "I knew him when."

WESTERN AUSTRALIA

The April meeting was held on the 19th—Easter Tuesday, a holiday for many Hams. Nevertheless the attendance was good at 20. Our President 6WH was away, so 6KW took the chair for the evening.

In the correspondence, sanction has been given by the P.M.G. Department for the formation of the VK6 Emergency Network. 6FC and 6MU have the matter well in hand and 80 metre skeds have been arranged among country members commencing Wednesday the 20th April, then every fortnight from that date. Time 1945 hours W.A.S.T. There will be a city representative in the network—either 6FC, 6MY, or 6KW

7 Mc. band scramble is being organised for the end of June—maybe early July, but we will be hearing more about it later; if it is a success it may become an annual feature. Remember the last one? Well, be in it again!

6JW is doing a good job in re-building 6WI, and hopes to have it on the air by May, running 50 watts input on 7195 Kc. John is making an excellent job of this rig and a vote of thanks to him has been recorded.

6HL quoted "QST" for the suggested rules to be observed by DX merchants. An extract will be made and all members will be circularised in the next bulletin. Observance of these rules will make DX hunting quite a lot easier, and much more enjoyable for both the hounds and the fox.

After the "interval," 6AG gave us a ten minute chat and demonstration on a piece of World War 1 equipment. An alternator used in aircraft to provide m.c.w. supply to a transmitter. 6AG recently had it rewound (during the enforced black-out) so as to keep his batteries charged.

6GH followed up with an impromptu talk about single side-band suppressed carrier communications. George told of two main principles used by commercial companies in U.S.A. and discussed the difficulties that could be expected. The receiver seemed to present the major problem. Soon this type of transmission will be permitted for Ham consumption so we feel that with 6GH's guidance, VK6 Hams will be to the front in the adoption of this technique. The meeting closed shortly after 10.30 p.m. and we noticed quite a few lads stayed back to pay their subs!

PERSONALITIES

The star attraction this month was the VK6 Emergency Network Contest, on the 16th. Being Easter Saturday, quite a number of the boys took to the bush with their portable gear. Unfortunately the weather was equally, but still the response was encouraging. 6MY put up a fancy antenna in some secluded spot, called CQ and then noticed the plate meter approaching zero. A hurried check of battery connections, etc., etc., were of no avail—the oscillator tube had taken the knock. We believe Mal went for a long walk!

6EU trundled his gear up Reabold Hill and worked everything in sight—and that means plenty! 6MB went to a lot of trouble to put his a.w.m.i. antenna 40 ft. higher than National Park. Bill struck a patch of bad weather and retreated to the car, but that did not prevent him putting out a whale of a signal on 7 and 3.5 Mc.

6XF down Katanning way was a very popular contact. We expect Frank to put in a really good log. 6MG, another contestant in the "miles per watt" section, was anxious to contact Geraldton, but doubt whether he made it because the Geraldton boys just didn't appear to be around that day.

6MU on the air for the occasion had some nice contacts on 3.5 Mc. 6FO was also on for a short while, but you didn't stay long enough Frank. 6WG from Albany had a nice c.w. signal up this way; what's the score Wal? 6JP was another popular boy who went off early!

6JK made a whole stack of "first" contacts. Frank received his licence only that morning and really enjoyed his first day on the air. 6YZ and 6DJ represented Carlyle in the contest. 6FA lasted the distance. 6VM was trying out his new 90 watt signal, think he must be satisfied by the reports he was getting.

6GO had a stack of QSL cards to send after the contest. 6WM put in a nice signal from Boulder, we believe 6DX was on somewhere, but didn't hear him. 6RF gave the game away when an electric motor started up and ran for three hours of the contest. Fred made a valiant effort to make up time after the QRM ceased.

6MO was in on the fun and wasted little time in working his contacts. 6HC was on for a while as was 6FL, but on the whole it was a good day and the operating standard was quite high.

6JN gave Ham Radio away on Easter Tuesday and went to work, but the doors wouldn't open—it was a holiday! We also hear from Kalamunda that 6CF was all up the pole with a beam over his shoulder. Nothing funny about that, but when Chuck found that he couldn't get down again, we just had to smile. 6AS amazed us all the other evening by working a PY. "The beam here is a 3-element job about two feet high, on a couple of boxes as a matter of fact"—wouldn't it?

We hear that ZS6OR has decided to settle down in ZS land instead of coming home to VK6. Len is on 14 Mc. phone regularly during week-ends. 6JS and 6RU are at present on business in VK2 and VK3. We have heard familiar voices from the East. 6KW has been making hay and is bringing his countries list up towards DX C.C. while 6BU is QRT. 6CK and 6AW spent a fortnight recently with a Signals Unit—neither have been heard on the air since! 6FA not active on the air lately, but Dick is doing an extensive radio course, so there are bigger and better signals to come from 6FA shortly.

TASMANIA

My notes this month will be scattered and skimped owing to the fact that I am snowed under by the heaps of non-existent notes which were not sent to me by all the bodies that promised to jot down their doings and send them along. Sorry for the moan blokes, but I guess one gets that way due to frustration or something.

Rupe has a landlady who is allergic to antennae and having read a story in a recent issue of "QST" he decided to put up an invisible sky wire. So, seizing the opportunity when she (the landlady) was out, he dug out an old audio trannie, removed a layer or two of the forty gauge wire from the secondary and strung it up in the approved manner and switched on the rig. It worked! As a matter of fact it worked so well that he finally worked some good DX, and is now akin to the proverbial dog with two tails, or as 7XA said, "He came out of his burrow at last."

Rupe's theory about this amazing phenomenon is that the wire is so thin, the signals can't stay on it and must go somewhere, hence the DX. Now if any of you chaps happen to work 7RM don't complain that his "modulation" is down—it's only the wire acting as a sideband filter. Incidently, I want to put up a long wire, so if anyone knows where I can get a Ford spark coil I'd be very grateful.

7JB is back on his old stamping ground and is already putting out a fine signal on 14 Mc., he should! He only lives about 400 yards away from me. 7XA is re-building his rig and according to reports it should be a honey! 7MY has just about finished his motor scooter—had a glimpse of it the other week and it certainly looks the goods. Alan says he is building it to do the rounds of the shacks. Good idea OM and while you are around 'em see if you can get any notes for this column.

NORTHERN ZONE

Were I to write about the activities of our various members this month readers could well be pardoned for thinking they were re-reading last month's issue of "Amateur Radio." I must, however, first of all mention that 7HY has become active once again. Henry has not been on the air since pre-war days and is finding that things have changed somewhat. This zone will be represented on 80 Mc. again shortly as 7BQ is building himself a new transmitter for this band. 7LZ is going to co-operate for purposes of tests, etc.

DX has been very scarce and few good DX stations have been heard from this location. The only direction from which good DX has been heard has been the Central American area. The two most constant stations being KV4AA and KS4AI. VK2QL, in his last month's notes, suggested that other States should contribute to his column. 7RK takes this suggestion one step further. Ray contends that as publications such as "QST" and "CQ" find DX pages so popular, we could well follow their example. This would mean taking 2QL's notes out of the VK2 column and putting it on a Federal basis, however with some help from the DX gang it should be possible to put on a good show with mutual benefit to all concerned. (I hope to be able to do this.—Editor.)

It has often been said that many stations do not QSL these days. Whilst listening for the DX to break through, I filled in the time checking my cards. Of the countries worked here, 81 per cent. have QSLed. A better average than I expected.

CORRESPONDENCE

AN OPEN LETTER TO AMATEUR STATION VK2JP

Dear OM,

The gang here in VK5 have a very high appreciation of your prowess in raising the elusive DX stations which frequent the 20 metre band at times, in fact I will go a step further and say that quite a number of us salute you, but, and it is a big "but," we have a very low appreciation of your practice of continuing to park on those elusive DX stations and act as traffic policeman for the rest of VK. Whilst you are directing local and DX stations up and down the band arranging and disarranging schedules with gay abandon, in fact carrying on like the proprietor of the 20 metre band, instead of a shareholder, the poor elusive DX becomes more and more elusive under the perfect "dogpile" of your creation. Now what about it OM, you sound a good scout, what about sliding out from on top after you have finished your QSO and leave the rest of Australia to fend for themselves. After all, you sound like an old hen clucking her chickens around her, and nine times out of ten the chickens don't want to be gathered in and only their politeness prevents them from telling you. We, in VK5, still admire your prowess, we still salute you, but for the "Love of Pete" give up the organising side of the business. 73 to you, and more power to your voice.

Sincerely yours,
"Practically all of VK5,"
per WARWICK W. PARSONS (5PS),
(the doer of dirty work for VK5).

FOR SALE, EXCHANGE, AND WANTED

9d. per line, minimum 2/-.

Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line.

FOR SALE.—A.W.A. 12 v.-275 v.-500 v. Rotary Transformer. Perfect order but minus brushes. £2 or offer. A. R. Wathen, Box 29, Casterton.

FOR SALE.—Complete Ham Station incl. 100 w. phone-c.w. tx., commercial appearance, all stages metered, push button oper., may be remotely controlled, class B 809s, modulate class C 813, 4 stages mic. preamp. from a D104. Modified AR7 rx with KS9er and 3" c.r.o., mod. checker, and much other equipt. for best offer. Ring WM 4362.

FOR SALE.—Moving Coil Mike, splendid English make, new, £7; modulator, 6C6, 6C6, 6A6 Class B, £4; 100 Kc. standard crystal in holder £2/15/- (with certificate); 0-5.0 Ma. d.c. meters 15/-; Weston 0-250 Ma. £1/10/-; 7193s 6/6; 834s 25/-; SCR522 less 832s £10/10/-; Gammatron 24 £1. K. McTaggart, 4 Kenilworth Grove, Glen Iris, S.E.6, UY 6256 evening.

FOR SALE.—One 10 Valve Marconi R1155 Communication Receiver, a.c. filter, S meter, tuning indicator, b.f.o., stand-by, 5 bands, 75 Kc.-18.5 Mc., very fine vernier, aerial switching, with speaker and p.p. output. Apply G. Laver, Fish Creek, Vic., Phone: 10U.

FOR SALE.—SCR522 transmitter section only, complete with 6G6, 6V6, two 832s, crystal and 4 meters, been on air, reasonable offer accepted. E. C. Wheller, 2a Fawkner Park, South Yarra.

FOR SALE.—Transmitting condensers, meters, transformers, relays, mikes, 455 Kc. crystal, large number of various components. Ring or call; I probably have what you want. G. H. Choules, 20 Donald St., East Malvern, WM 6854, evenings or week-ends.

SELL: Good English 11 Valve Communication Receiver, 11-200 metres, also almost new Crosley Transceiver. Both less valves. What offers? Mustard, Union, Sydney University.

SELL OR EXCHANGE.—Class "C" Wavemeter; Pair new 801s; Type A Mk. III.; Collins sealed 200 Kc. crystal. Ayre, 65 Kenmare St., E.12, Vic.

RED LINE

TRANSFORMERS OF DISTINCTION

LINE INPUT TRANSFORMERS (LOW LEVEL)

The items listed in this section are wide range low level audio transformers for low level input, output and mixing systems, etc. Coil structures are balanced semi-toroid types with multi-shields and windings for minimum hum pick-up. Core materials are high permeability Telcon alloys.

In all cases, the higher of the two line impedances given are centre-tapped and balanced inductively and capacitively. The lower impedance is obtained by parallel connections, in which case the centre tap is not available.

ITEM 82. **TYPE No. AM1**

Primary Z: 600/125 ohm Line .. .. Plus 10 db
Secondary Z: 60,000 ohms .. .. Single or p.p. Grids
Purpose .. .. Line to Grid coupling
Frequency Response .. .. Plus or minus ½ db 30 c.p.s. to 12 Kc.
Base: 2-3/8" x 2-1/8" x 2-3/8" H .. .. Weight: 1 lb. 4 ozs.
Mounting: R9 .. .. Reversible

ITEM 83. **TYPE No. AM4**

Primary Z: 200/50 ohm Line .. .. Plus 10 db
Secondary Z: 60,000 ohms .. .. Single or p.p. Grids
Purpose: .. .. Line to Grid coupling
Frequency Response .. .. Plus or minus ½ db. 30 c.p.s. to 12 Kc.
Base: 2-3/8" x 2-1/8" x 2-3/8" H .. .. Weight: 1 lb. 4 ozs.
Mounting: R9 .. .. Reversible

ITEM 84. **TYPE No. AM5**

Primary Z: 50/12.5 ohms .. .. Plus 10 db
Secondary Z: 60,000 ohms .. .. Single or p.p. Grids
Purpose .. .. Low impedance source to Grids
Frequency Response .. .. Plus or minus ½ db. 30 c.p.s. to 12 Kc.
Base: 2-3/8" x 2-1/8" x 2-3/8" H .. .. Weight: 1 lb. 4 ozs.
Mounting: R9 .. .. Reversible

LINE OUTPUT TRANSFORMERS (LOW LEVEL)

ITEM 85. **TYPE No. AR5**

Primary Z: 20,000 ohms .. .. Plus 20 db
Secondary Z: .. .. 600 and 125 ohms Line
Coupling .. .. Direct fed. Max. DC 7 Ma.
Purpose .. .. Single Triode output to Line
Frequency Response .. .. Plus or minus ½ db 30 c.p.s. to 10 Kc.
Base: 2-3/4" x 2-3/8" x 3-3/8" H .. .. Weight: 2 lbs.
Mounting: R81 .. .. Reversible

ITEM 86. **TYPE No. AR7**

Primary Z: 30,000 ohms .. .. Plus 20 db
Secondary Z .. .. 600 and 125 ohms Line
Coupling: Direct .. .. Unbal. DC 3 Ma.
Purpose .. .. p.p triode output to Line
Frequency Response .. .. Plus or minus ½ db 30 c.p.s. to 10 Kc.
Base: 2-3/4" x 2-3/8" x 3-3/8" H .. .. Weight: 2 lbs.
Mounting: R81 .. .. Reversible

INTER-VALVE TRANSFORMERS

The items in this section, with the exception of item 90 are high quality inter-valve coupling transformers. Coil structures are balanced semi-toroid types with highly sectionalised windings designed for inductive and capacitive balance within one per cent.

Core materials are high permeability Telcon alloys imported in the form of annealed stampings.

Frequency response information is based on resistive termination and results will be modified if used in circuits having abnormally high input capacitances.

ITEM 87. **TYPE No. AM3**

Primary Z: 10,000 ohms .. .. Plus 10 db
.. .. Single Medium impedance triode
Secondary Z: 90,000 ohms .. .. Single or p.p. Grids
Purpose .. .. p.p. phase inv. and/or coupling
Coupling .. .. Shunt fed. No DC in Primary
Frequency Response .. .. Plus or minus ½ db. 30 c.p.s. to 12 Kc.
Base: 2-3/8" x 2-1/8" x 2-3/8" H .. .. Weight: 1 lb. 4 ozs.
Mounting: R9 .. .. Reversible

ITEM 88. **TYPE No. AM2**

Primary Z: 20,000 ohms .. .. Plus 10 db
.. .. Single or p.p. medium impedance triode
Secondary Z: 80,000 ohms .. .. Single or p.p. Grids
Purpose .. .. p.p. phase inv. and/or coupling
Coupling .. .. Shunt fed. No DC in Primary
Frequency Response .. .. Plus or minus 1 db 30 c.p.s. to 12 Kc.
Base: 2-3/8" x 2-1/8" x 2-3/8" H .. .. Weight: 1 lb. 4 ozs.
Mounting: R9 .. .. Reversible

ITEM 89. **TYPE No. AR3**

Primary Z: 10,000 ohms .. .. Plus 18 db
.. .. Single medium impedance triode
Secondary Z: 90,000 ohms .. .. Single or p.p. Grids
Purpose .. .. p.p. phase inv. and/or coupling
Coupling: Direct fed .. .. Maximum DC 8 Ma.
Frequency Response .. .. Plus or minus 1 db 30 c.p.s. to 12 Kc.
Base: 2-3/4" x 2-3/8" x 3-3/8" H .. .. Weight: 2 lbs.
Mounting: R81 .. .. Reversible

ITEM 90. **TYPE No. RA3**

Primary Z: 10,000 ohms .. .. Plus 10 db
.. .. Single medium impedance triode
Secondary Z: 90,000 .. .. Single Grid
Purpose .. .. Audio Coupling Transformer
Coupling: Direct .. .. Max. unbal. DC 10 Ma.
Frequency Response .. .. Plus or minus 2 db 75 c.p.s. to 5 Kc.
Base: 2-1/8" x 1-7/8" x 2-1/2" H .. .. Weight: 1 lb. 8 ozs.
Mounting: UF1 .. .. "8" is 7/8"

DRIVER TRANSFORMER (CLASS A-AB-B)

ITEM 91. **TYPE No. AR1**

Primary Z: 20,000 ohms .. .. p.p. Med. Imp. Triodes
Secondary Z: 20,000 ohms CT .. .. p.p Grids
Ratio: 1:1 .. .. Whole Primary to whole Secondary
Coupling Direct .. .. Max. unbal. DC 3 Ma.
Purpose .. .. Class A1 p.p. Driver
Frequency Response .. .. Plus or minus ½ db. 30 c.p.s. to 12 Kc.
Base: 2-3/4" x 2-3/8" x 3-3/8" H .. .. Weight: 2 lbs.
Mounting: R81 .. .. Reversible

ITEM 92. **TYPE No. AR2**

Primary Z: 20,000 ohms .. .. p.p. Med. Imp. Triodes
Secondary Z: 50,000 ohms CT .. .. p.p. Grids
Ratio: 4:1 .. .. Whole Primary to Half Secondary
Coupling: Direct .. .. Max. unbal. DC 3 Ma.
Purpose .. .. Class AB2 p.p. Driver
Frequency Response .. .. Plus or minus ½ db. 30 c.p.s. to 12 Kc.
Base: 2-3/4" x 2-3/8" x 3-3/8" H .. .. Weight: 2 lbs.
Mounting: R81 .. .. Reversible

ITEM 93. **TYPE No. AS2**

Primary Z: 10,000 ohms .. .. Single 6V6 Triode
Secondary Z: 5,000 ohms CT .. .. p.p. Grids
Ratio: 2.83:1 .. .. Whole Primary to Half Secondary
Coupling: Direct .. .. Max. unbal. DC 40 Ma.
Purpose .. .. Class AB2 Driver
Frequency Response .. .. Plus or minus 2 db 50 c.p.s. to 7 Kc.
Base: 2-3/4" x 2-3/8" x 3-3/8" H .. .. Weight: 2 lbs.
Mounting: R81 .. .. Reversible

ITEM 96. **TYPE No. D19**

Primary Z: 10,000 ohms .. .. Plus 23 db
Secondary Z: p.p. 19 Grids .. .. Class B
Ratio: 2:1 .. .. Whole Primary to Half Secondary
Coupling: Direct .. .. Max. unbal. DC 16 Ma.
Frequency Response .. .. Plus or minus 2 db 50 c.p.s. to 7 Kc.
Base: 2-1/8" x 1-7/8" x 2-1/2" H .. .. Weight: 1 lb. 4 ozs.
Mounting: UF1 .. .. "8" is 7/8"

RED LINE EQUIPMENT PTY. LTD.

TRANSFORMER ENGINEERS

WORKSHOP:
Central 4773.
2 Coates Lane,
Melbourne.

CITY OFFICE:
MU 6895 (3 lines).
157 Elizabeth St.,
Melbourne.

Keep this Catalogue. Cut out and file for reference.

DISTRIBUTORS:

VICTORIA:
Homecrafts Pty. Ltd.
Arthur J. Veall Pty. Ltd.
Radio Parts Pty. Ltd.
Howard Radio
A. G. Healing Ltd.
Healings Pty. Ltd.
Motor Spares Ltd.
Lawrence & Hanson Electrical (Vic.) Pty. Ltd.
Warburton Franki (Mel.) Ltd.
And all leading wholesalers.

NEW SOUTH WALES:
United Radio Distributors Pty. Ltd.

QUEENSLAND:
A. E. Harold
B. Martin
Denradio Industries (Maryborough).
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SOUTH AUSTRALIA:
Gerrard & Goodman.
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Noyes Bros. (Aust.) Pty. Ltd.
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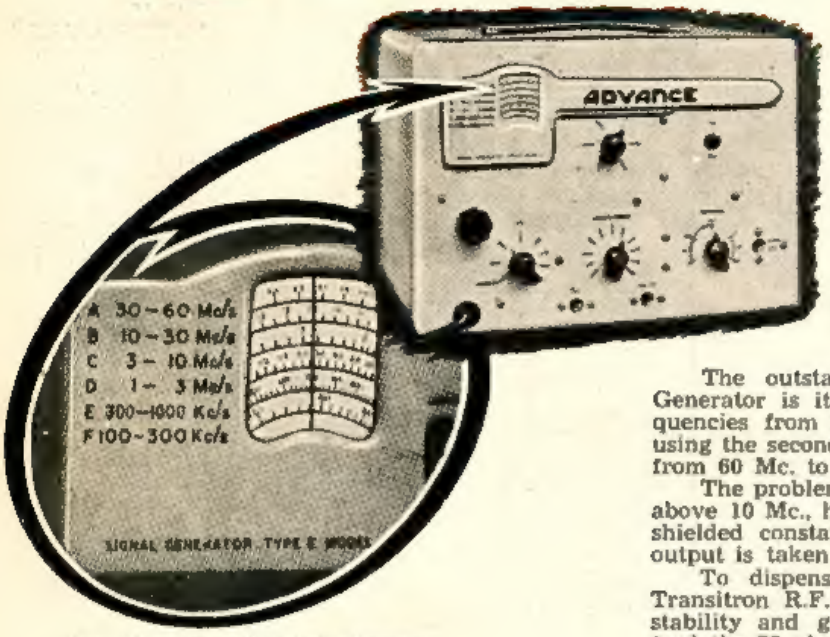
A GUARANTEE OF DEPENDABILITY

MAGRATHS HAVE THEM..



The directly calibrated, illuminated dial gives quick and easy frequency reading on all six ranges.

"ADVANCE" SIGNAL GENERATORS

TYPE "E"

The outstanding feature of the new Type "E" Signal Generator is its exceptionally wide range covering all frequencies from 100 Kc. to 60 Mc. of FUNDAMENTALS. By using the second harmonic on Range A, this range is extended from 60 Mc. to 120 Mc.

The problem of poor attenuation, especially at frequencies above 10 Mc., has been overcome by the design of a properly shielded constant impedance 75 ohms ladder network whose output is taken to a matched transmission line.

To dispense with an expensive monitoring system, a Transitron R.F. Oscillator circuit is used, designed for high stability and giving the necessary constant output level to feed the 75 ohms attenuator system.

Careful attention to shielding and filtering of the power supply has reduced leakage and stray fields to 3 microvolts at 60 megacycles.

SPECIFICATIONS

FREQUENCY RANGE.—100 Kc. to 60 Mc. in six ranges, calibration accuracy ± 1%.

By using the second harmonic of Range A the frequency range is extended from 60-120 Mc. Also on this range, the British television sound and vision frequencies are marked.

OUTPUT VOLTAGE.—Obtained from the end of a 75 ohm matched transmission line. Output continuously variable from 1 microvolt to 100 millivolts.

OUTPUT IMPEDANCE.—When transmission line unterminated, 75 ohms. When terminated, three values are obtainable: 37 ohms, 10 ohms, or 10 ohms through a standard all-wave dummy aerial.

1 VOLT SOCKET.—A steady output of approximately 1 volt is available at this socket. Output impedance is about 50 ohms.

INTERNAL MODULATION.—30% at 400 c.p.s.

A.F. OUTPUT.—Variable from 0-5 volts max. approximately. The output impedance is 50,000 ohms at maximum output.

R.F. LEAKAGE.—Oscillator section well shielded and external fields negligible (less than 3 microvolts).

ACCESSORIES:—

1 EF50 Valve, Mullard or Sylvania
1 6J5G Valve
1 6X5G Valve
1 Pilot Lamp, Type MES 11 mm. 6.5 volt.
1 Termination Pad and Dummy Aerial, Type T.P.1.
1 Shielded A.F. lead, complete with plug and crocodile clips, Type P.L.22.

POWER SUPPLY.—100-210-230-250 volts 40-100 c.p.s., consumption approximately 15 watts.

DIMENSIONS.—13" x 10½" x 7¾" deep overall.

WEIGHT.—15 lbs. nett.

FINISH.—Housed in attractive steel case, panel and case being sprayed durable cream enamel, leather carrying handle fitted.

J.H. MAGRATH & Co.

208 Lonsdale Street, Melbourne. Phone: Central 3688-4414